

THE
**SURGICAL INSTRUMENTS
OF THE HINDUS**

WITH

**A Comparative Study of the Surgical Instruments of
the Greek, Roman, Arab and the Modern
European Surgeons.**

BY

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TO
THE HON'BLE
SIR ASUTOSH MUKHOPADHYAY, Kt ,
Saraswati, Sastra-vachaspati,
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AND
Chairman of the Board of Sanskrit Studies,

In recognition of his love of Science, his pre-eminent services to the cause
of University Education, his administrative ability, and his generous
liberality to scholars

AS WELL AS

In grateful remembrance of many acts of kindness,

THIS VOLUME IS
DEDICATED

BY
THE AUTHOR

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PREFACE.



For researches into the state of medicine among the Ancient Hindus, we have several sources of information to scrutinise. The remarks of Dr. Payne regarding the sources of information of Anglo-Saxon Medicine may apply here with still greater force.¹

First is the evidence of contemporary literature about the craft of physicians and surgeons, since we are sure that there has always been a class of medicine men of one kind or another. Thus we find in the Rgveda, the use of artificial limb as a substitute for a limb accidentally lost² From the Mahābhārata,

¹ Payne's English Medicine in the Anglo-Saxon Times, P. 7.

² चरित्रं हि वेरिवाच्छेदि पर्णम्
 आज्ञा खेलस्य परितक्मायाम् ।
 सद्यो जङ्गमायसौ विशपलायै
 धने हिते सत्तवे प्रत्यधत्तम् ॥

Rgveda—15th Bk., 1st Mandala, 116 Śūkta.

अगस्त्य पुरोहितः खेले नाम राजा तस्य सम्बन्धिनौ विशपलानामस्त्रौ, सयामे शत्रुभिः क्षिप्रपदा आसीत् । पुरोहितेन अगस्त्येन स्तुतौ अश्विनौ रात्रौ आगत्य आधीमयं पादं समधत्तम् । तदतदाह 'आज्ञा'—आज्ञौ, सयामे, अगस्त्य पुरोहितस्य—खेलस्य राजतः सम्बन्धिन्याः विशपलाख्याया, 'चरित्र'—चरण, 'वेरिव'—वे. पक्षिणः, 'पर्ण' पतत्रम् इव, 'अच्छेदि हि'—पूरा क्षिप्रमभूत् खलु । हे अश्विनौ । युवां अगस्त्येन स्तुतौ सन्तौ, 'परितक्माया'—रात्रौ, आगत्य, 'सद्यः'—तदानीमेव, 'सत्तवे'—सत्तुं गतुम् इत्यर्थः, विशपलायै 'आयसौ',—लौहमयीन्, 'जङ्गा'—जङ्गीपलक्षितं पादम्, 'प्रत्यधत्तम्'—सम्मानम् एकीकरन्निवर्धनं कृतवन्तौ

we learn that when Parikṣit, the king of the Kurus, became certain of his approaching death by snake-bite, due to a curse uttered by a sage, he tried to protect himself by the constant attendance of a number of physicians, who were well supplied with antidotes.¹ Again it is stated that when the great warrior Bhīṣma was wounded in war, the skillful army surgeons came to him with the necessary medical and surgical appliances to treat his wounds.² From the *Mohāvāgga*, we learn that Jivaka, the personal physician of Buddha, practised cranial surgery with success.³ In the *Mālavikāgnimitra*, we find the use of charms—a signet

- ¹ समन्तं सक्तिमिद्यैव स तदा मन्दतत्त्ववित् ।
 प्रासादं कारयामास एकस्तम्भं सुरक्षितं ।
 रक्षाञ्च विदधे तत्र भिषजश्चौषधानि च ।
 ब्राह्मणान्मन्त्रसिद्धाञ्च सर्व्वतो वैन्ददीजयत् ।

Mahābhārata, *Adi Parva*, Ch. 42.

- ² उपनिवृत्तधी वैद्याः शल्योद्गरणकीविदाः ।
 सर्व्वोपकरणैर्युक्ताः कुशलैः साधु शिक्षिताः ।
 तान् दृष्ट्वा जाम्हवीपुङ्गवः प्रोवाच तनय तव ।
 घनं दत्त्वा विसृज्यन्ता पूजयित्वा चिकित्सकाः ।
 एवं गते भवेदानी वैद्यैः काव्यमिहास्ति किं ।
 चतुर्धर्मो प्रशस्तो हि प्राप्नोऽस्मि परमा गति ।
 नैष धर्मो सहीयाताः शरतल्पगतस्य मे ।
 एभिरिव शरैश्चाह दग्धव्योऽस्मि नराधिपाः ।
 तच्छ्रुत्वा वचनं तस्य पुत्री दय्योषनसव ।
 वैद्यान् विसर्ज्जयामास पूजयित्वा वधाऽर्हतः ।

Mahābhārata, *Bhīṣma Parva*, Ch 121,

Vs 5745—5750. (A.S.B. Ed.)

³ *Mohāvāgga*, VIII. 116

ring as a healing talisman for the cure of snake-bite,¹ and also we find there a reference to a class of physicians who specialised themselves in Toxicology (Viṣa-Vaidya),² and were held in high esteem for their professional skill by the public.³ From the Bhojaprabandha, the administration of some kind of anæsthetic by inhalation before surgical operations can be ascertained. Similarly from the books of Law, we know the relations of the profession to society in general. In the Manusmṛhitā, we have unmistakable testimony of the decline of Hindu surgery as the author prohibits the eating of cooked rice from the hands of a surgeon.⁴

¹ सङ्घि ! देवीए इदं सिप्पिसआसादी आनीदन्नागमुद्दासणाह अङ्गुलीअथ सिणिङ्गं
णिमालअन्ती तूह उवालम्भे पडिदन्ति ॥

Mālavikāgnimitra, Ch. I.

जय ।—जेदु जेदु भट्टा । धुवसिङ्गी विण्वेदी । उदकुम्भविषाणेण सप्पमुद्दिआ कप्पिदन्वा ।
ता अण्णेसीअदुत्ति । धारि ।—एदं सप्पमुद्दअम् अङ्गुलीअअम् । पच्छा मह हट्थे णम् ।

Ibid, Ch. IV.

² परि ।—हेदी दंशस्य दाहो वा क्षतस्थारक्तभीक्ष्णम् । एतानि दष्टमावाण-
मायुष्याः प्रतिपत्तयः ॥ (संप्रति विषवैद्यानाम् कर्मम् ।)

राजा ।—जयसेने ! धुवसिङ्घिः क्षिप्रमाह्वयताम् ॥

Ibid, Ch. IV.

³ निपु ।—पसणमुहवणो दीसदि । अवि अ धुवसिङ्घिणा चिडस्सिदी । मा से
असङ्गणिज्जं पावं ॥

Ibid, Ch. IV.

⁴ चिकित्सकान्देवलकान्मांसविक्रयिणस्तथा ।

विपण्येन च जीवन्तो वर्ज्याः स्युर्हव्यकव्ययीः ॥

Manusmṛhitā, Ch. III, 152.

चिकित्सकस्य मृगयोः क्रूरस्योच्छिष्टभोजिनः ।

उपात्रं सूदिकात्र च पर्याप्तान्नमनिदेयम् ॥

Ibid, Ch. IV, 212.

Secondly, monuments or inscriptions scattered about the country have to be searched, as references found therein to the science of medicine, are more trustworthy than documents which may have been more or less tampered with by interpolations of subsequent writers. Thus we learn from the Edicts of Aśoka, that hospitals were established by him in different parts of his kingdom, not only for the treatment of suffering humanity but also for the brute creation¹.

Thirdly, personages and scenes in connection with medical practice, and figures of herbs may have been represented in works of art which must be thoroughly examined. But unfortunately we do not possess any such work of art and so we can learn nothing to our purpose from this source. In the interpretation of the subject of the Friezes of the Rani Naur and Ganesha's Cave, Dr. R. L. Mitra says,—“The shampooing in the Ganesha Cave may be for a parent, but the close seat with the right hand round the neck of the male personage in the other, would be highly unbecoming in an unmarried female. But if the stooping figure be taken to be that of a wounded man, a wounded priest for instance, the lady may be a maiden nursing him without any offence to propriety. It is true that the appearance of the figure on the mattress does not indicate suffering from a wound, but in the Rani Naur frieze, the stooping head affords some indication of it”².

पूये चिकित्सकस्याह पुंस्यस्त्वन्नमिन्द्रियम् ।

विद्या वार्धकिसाम्राज्ञं शस्त्रविक्रयिणीं मलम् ॥

Manusamhitā, Ch. IV, 220.

Rock Inscriptions, Eilat II.

² The *Antiquities of Orissa*, Vol. II, p. 11

Fourthly, the various kinds of surgical instruments preserved in museums are to be examined and the reports of finds of surgical appliances in various localities are to be studied. We know what a flood of light has been thrown on ancient Greek surgery by the steady progress of archæological discovery and finds of instruments at Pompeii, Herculaneum and elsewhere, and by the study of the specimens preserved in the Naples museum, the Athens museum and other museums of Europe. But as far as I have been able to trace, our museums contain no finds supplying us with any information on the subject.

Fifthly, the literature of medicine itself should be thoroughly inquired into and excerpts elucidative of our subject should be compared with one another. "The detailed descriptions of the very numerous Hindu instruments not being very minute or precise, Professor Wilson says, we can only conjecture what they may have been, from a consideration of the purport of their names, and the objects to which they were applied, in connection with the imperfect description given"¹ We are fortunate, however, in possessing a copious medical literature of great merit from very early times. We shall describe the important books in the introductory chapter, with short notices of their authors.

Sixthly, the comparative study of the science at the same period in other countries also furnishes us with valuable materials, as regards the state of medicine in a country. It is well known that Sanskrit works are often written in a very terse language

and it might be said with greater truth about the works of early Sanskrit authors, the comment of a learned critic about the style of Thucydides, the famous historian,—“the most obvious and characteristic of his peculiarities is an endeavour to express as much matter as possible in as few words as possible, to combine many thoughts into one, and always to leave the reader to supply something of his own. Hence his conciseness often becomes obscure.” I could not form any idea as to the shape of some of the surgical instruments from the descriptions given in the text books, and the commentators are often silent on those passages. But when I read the accounts of similar instruments in Greek and Roman literature, my difficulties at once cleared up. We know with what brilliant results comparative mythology and comparative philology have been studied of late years, and I am sure that a comparative study of medical science by scholars will lead to interesting discoveries. So I have added descriptions of the instruments according to the Greeks, Romans and Arabs at the end of the descriptions given in Sanskrit books. the former serving as commentaries on the latter.

Seventhly, in the accounts of historians, travellers and pilgrims from foreign countries, may be found notices of medical science, as they saw it practised during their sojourn in a country, and such impressions, if properly collated, may bear impartial testimony to the progress of the science at the time. Again, we must enquire if the original treatises of medicine can be proved to have been translated into different languages and whether the remedial agents of a country can be traced in the Phœnician, Persian, Greek, and Roman poems of different nations. Thus we

learn from the accounts of Houen Tsang and Fa Hian that charitable institutions such as hospitals, dispensaries and Pûnyasālās (Houses of Charity) were quite common in ancient India.¹ Arrian informs us in his *Indica* that the study of medicine among the Brahmans was in great favour.² We know that the standard works on medicine were translated in Arabic in the 8th Century B. C.,³ and that various medicinal herbs of Indian origin found their way into the Greek *Materia Medica*.⁴

Eighthly, we must enquire whether the medical practice of ancient times is still resorted to by the physicians of the present days. The Hindu system of medicine is still being practised all over India, more or less in its original form, and so can still be studied at first hand. But for our present purpose, we derive little or no help from the *Views* of the present generation. They know practically nothing about anatomy and surgery which began to decline during the Buddhist era, and finally all vestiges of the science became lost during the Mahomedan rule. I have spared no pains to exhaust these sources of information so far as surgical instruments are concerned. Whether or not I have been fortunate enough to give just the necessary details of instruments from the best accessible authorities without at the same time loading my pages with superfluous matter, must be left to the judgment of my readers to determine.

¹ Beal's Buddhist Records of the Western World, Vol I., P 165, 198 and 214; Vol. II., p 188 and 303.

² Arrian's *Indica* c. 27.

³ Albertus's *India, Sacramentis* Proæc p XXX XXXI

⁴ Royle's *Antiquity of Hindu Medicine* p 77 113

Now it may be asked why the Science and Art of Surgery, which was successfully practised in Ancient India, is so much neglected by the present generation of *Vaid*s. So let us consider the causes that led to the downfall of Hindu Surgery.

1. The Hindus from a very early period have given up the dissection of human bodies—the only trustworthy method of acquiring anatomical knowledge—merely because it may occasion ceremonial uncleanness. The Ancient Hindus were, however, free from such prejudices. Manu lays down that mere bathing will purify a Brahman who has touched a corpse,¹ whilst stroking a cow or looking at the Sun, having only sprinkled his mouth with water will remove the defilement due to touching a dead bone². But even in the *Manusmṛitā*, we can trace the decline of Hindu surgery, and his law forbidding any one from eating food from the hands of a doctor evidently refers to a surgeon.*

2. The interference of the priests in India, as in Europe played an important part. They began to cure diseases by spells, charms, texts and drugs, and temples have served as consulting rooms for the treatment as much of the diseases

¹ दिवाकीर्त्तिसुदक्षा च पतित सृजिका तथा ।

श्व तरसृष्टिर्न चैव सृष्ट्वा क्षानेन श्रव्यति ॥

The Institutes of Manu, Ch V, 85.

² नारं सृष्टास्थि सस्नेह क्षात्वा विप्रो विप्रव्यति ।

आचक्ष्वेव तु निक्षेहे नासालभ्यावर्त्तनीत्यवा ॥

Ibid, Ch V, 87.

Ibid, Ch III 152 Ch IV vs 21, and 22.

of the body as of the soul. The example of such a temple we still find in Tārakeśvar where many sick people repair to have their maladies cured by dreams, hypnotic suggestions and incubation or temple-sleep. Similar practice was prevalent in Egypt and Greece in olden times. The modern practice of using galvanic rings and abdominal belts is merely an advanced method of indulging in superstitious ideas

3 The patients always dreaded the surgeon's knife—especially when the use of a general anæsthetic was unknown. At the same time, the comparative success of poultices, actual and potential cauteries, and other external applications have influenced the lay mind that operations by knife are not always needed.¹ The Hindu surgeons themselves believed in similar tenets, for Suśruta, the surgeon, remarks that “of all cutting instruments and their substitutes, caustics (or vegetable alkalies) are the most important, because by means of them, deep and superficial incisions and scarifications may be made, and derangements of the three humours (air, bile and phlegm) may be rectified”, and again he says that “with

¹ दिव्यौषधिं विना देवि शस्त्रविद्या सुनिष्फला ।

वैद्यैः कुरुते या च दुश्चिकित्स्ये व्यघातरि ॥

जायन्ते हि यथाशंसि पाटितानि पुनः पुनः ।

किं तच्च शस्त्रसाध्यं स्यात् सुसिद्धैर्भेषजैर्विना ॥

घातुना व्यापदि यच्च भेषजं नैव सिद्ध्यति ।

ह्याभये दुस्तरे तस्मिन् शस्त्रमेव विधीयते ॥

पुनः संशमनं तच्च घातुनाम् हि प्रशान्तये ।

प्रदातव्यं महादेवि शस्त्रादन्माकं ब्रवीमि ते ॥

regard to surgical treatment, actual cautery is said to be superior to caustics, in as much as diseases treated with the actual cautery do not reappear, and because it can cure diseases which are incurable by medicines, instruments and caustics"¹ Thus we see that the Hindus were partial to external applications as a cure of surgical diseases, and gradually they neglected the surgical operations—one of the most important means of acquiring knowledge in Morbid Anatomy and of testing the correctness of diagnosis, in the absence of the post mortem examinations of the cadavers. Thus not only surgery but medicine also suffered materially.

4 The Hindus always cherish a high regard for the writings of their sages, and the earliest works on medicine became the standard works and were held sacred. Any violation of their opinions was considered a sacrilege, and all knowledge thus soon became stereotyped. In later times, none dared to question the validity of the statements contained therein, and though about three thousand years have elapsed, and though the votaries of the science are still honoured and wellpaid, the science instead of improving has markedly deteriorated. In fact, only two authors—Caraka and Suśruta—are original; the later authorities—and there is a vast number of them—were merely their servile copyists who only differed from them when they indulged in some grave errors. We have a parallel in the history of medical science in Europe, where Galen

¹ चारादग्निर्जीवान् क्रियासु व्याख्यस्तद्व्याख्यानं रोगानामपुनर्भावाद्देवजशस्तचारा-
साध्यानां तत्साध्यानाञ्च ।

held his sway over the profession for about two thousand years.

5. One of the potent causes of progressive decadence in the knowledge and practice of surgery amongst the Hindus is the rapid spread of Buddhism in India. Though Buddha sanctioned the use of the lancet in some cases, in cases of a doubtful nature he prohibited the use of instruments in the treatment of even surgical diseases. For example, he allowed the surgical treatment of boils by knife,¹ but he prohibited not only the use of the lancet for treatment of fistula-in-ano but the use of clysters also.² As it would be interesting to know the reasons of this prohibition, I quote the story in full from the *Mohāvāgga* (Sacred Books of the East)³

1. Now when the Blessed One had remained at Sāvattthi as long as he thought fit, he went forth on his journey to Rāgagaha, and wandering straight on he arrived at Rāgagaha; and there at Rāgagaha he stayed at the Veluvana in the Kalandaka-nivāpa.

Now at that time a certain Bhikkhu was suffering from fistula. And the physician (named) Ākāsa-gotta lanced it. And the Blessed One when he was going round through the sleeping-places came to the place where that Bhikkhu dwelt.

2. Ākāsa-gotta, the physician, saw the Blessed One coming from afar, and when he saw him he said to the Blessed One: ' Let the venerable Gotama come and look at this Bhikkhu's orifice ;

¹ *Mohāvāgga*, VI 14. 4 & 5.

² *Ibid.*, VI 22. 3.

³ *Ibid.* VI. 22

it is like the mouth of an iguana !' And the Blessed One thinking, 'This foolish fellow is making fun of me,' kept silence and turned away. And in that connection, and on account of that, he called a meeting of the Bhikkhu-saṃgha, and asked the Bhikkhus, 'Is there, O Bhikkhus, in that Vihāra a Bhikkhu who is sick ?'

'There is Lord.'

'What is the matter, O Bhikkhus, with that Bhikkhu ?'

'That venerable one, Lord, has a fistula, and Ākāsa-gotta the physician, has been lancing it.'

3. The Blessed Buddha rebuked (that Bhikkhu), saying, 'This is improper, O Bhikkhus, for that foolish one, unbecoming, indecent, unworthy of Samanas, not allowable and ought not to be done. How can this foolish fellow, O Bhikkhus, allow a surgical operation to be performed in that part of his body ? The skin there, O Bhikkhus, is tender, the wound is difficult to treat, the knife is difficult to guide. This will not redound, O Bhikkhus, to the conversion of the unconverted'

And having rebuked him, the Blessed One, after delivering a religious discourse, said to the Bhikkhus, 'You are not, O Bhikkhus, to allow a surgical operation to be performed upon you in that part of your bodies. Whosoever allows that, is guilty of thullakkaya offence.'

4. Now at that time Khabbaggiya Bhikkhus since a surgical operation had been forbidden by the Blessed One

'Is it true, as they say, O Bhikkhus, that the Khabbaggiya Bhikkhus use a clyster ?'

'It is true, my Lord.'

He rebuked them, and having delivered a religious discourse, said to the Bhikkhus : 'No surgical operation is to be performed within a distance of two inches round the anus, and a clyster is not to be used. Whoever does so, is guilty of a *thullakkaya* offence.'

And thus we find that Jīvaka, the famous surgeon, is said to have cured a case of fistula-in-ano by the single application of an ointment¹ The operation fell into such disuse that when Śāṅkarācāryya suffered from the same disease, no surgical aid was thought necessary by the physicians, though it is said that he was treated by renowned doctors of the time.²

From Megasthenes, we learn that "among the Sarmans the Hylobioi (living in woods) were held in most honour, and next to them the physicians, who are mendicants and also ascetics, like the class above them and the class below them,

¹ "And Gīvaka Komārabhaṭṭka healed the fistula of the Magadha King Seniya Bimbisāra by one anointing."

Mohāvāgga (Sacred Books of the East), VIII. 1 15.

² अचिकित्स्यभगन्दराख्यरीगप्रसरच्छीषितपङ्क्तिस्त्रयाद्यां ।

अलुगुप्स्यविशीघनादिरुपां परिचर्यामकृताऽस्य तीटकार्यः ॥

* * * * *

निगदिते मुनिनेति भिषग्वरा विदधिर बहुधागदसत्क्रियाः ।

न च अश्वाम गटीवज्जापटीविमनयः पटवी भिषजोऽभवन् ॥

which consisted of sorcerers and fortune-tellers,"¹ and Strabo² mentions that these physicians "cured diseases by diet rather than by medicinal remedies which were chiefly unguents and cataplasms"³

6. No science can flourish without the support of the government of the day. The Hindus became a subject race; and any departure from the traditional store of knowledge in the shape of improvement in the quality and additions to its quantity was neither tolerated by the people, who are proverbially conservative, nor countenanced by the royal court, for the conquerors brought with them and patronised their own hakeems and doctors. Neither the Mahomedans nor the English have taken any real interest in the Indian Medical Science from preconceived notions that it contains nothing worthy of their perusal. The *Kavirajes* again are so conservative in their opinions that they can not boldly advocate even the use of such drugs as are of unquestionable value in the treatment of diseases, as for example the use of Quinine in Malaria. To this may be contrasted the behaviour of Bhāvamīśra, who lived about three hundred years back and who adopted many medicaments of foreign origin. The consequence can easily be imagined, and in the language of Elphinstone, can be thus described: "Physicians follow the practice of their instructor without inquiry, and surgery is so far neglected, that bleeding is left to the barber, bone-setting to the herdsman, and every one is ready to administer

¹ The Invasion of Alexander the Great. McCrindle Appendices. p. 358.
² " X V 1. 58-60

³ The of the Great. McCrindle. Appendices. p. 368-69

a blister, which is done with the juice of the euphorbium and still oftner with the actual cautery.”¹

But we need not enlarge any further. The object of this essay is not to write out an exhaustive dissertation on the Hindu medical science but by a few suggestive facts, however imperfect and fragmentary, to stimulate curiosity and divert attention of the diligent scholars to a vast field of research, which seems as yet to have been only partially explored.

It is proper here to acknowledge that I have on all occasions freely availed myself of the labours of Drs Wise, Thakore Saheb of Gondal, and the translators of *Suśruta Samhitā* in the *Bibliotheca Indica*, namely, Dutt and Hoernle. It is a great pity that this translation has not as yet progressed beyond three fasciculi. Hoernle's recent contribution, “*Osteology of the Hindus*,” is a move in the right direction and we hope it to be followed by similar enquiries in other branches of the science. Royle for the first time proved beyond doubt the high antiquity of Hindu medicine, and established its right position in the history of the science. Wise is the pioneer of systematic research in this field of study, and his sympathetic appreciation of the Hindu system of medicine will always be remembered with gratitude by our countrymen. Dutt's *Materna Medica of the Hindus* is a work of great merit, and I have derived material assistance from the excellent treatise, “*History of Aryan Medical Science*,” by the Thakore Saheb of Gondal. Dr. Ray's *History of Hindu Chemistry* is a valuable contribution in the cognate subject of chemistry. I have borrowed from these writers largely, but

I flatter myself it will also be found that I have further collected from various sources a store of valuable information, for which I am in no way indebted to any of my predecessors in the same field of research. The descriptions of the surgical instruments of the Greeks, the Romans and the Arabs, I have taken from the excellent English translations of Paulus Ægineta, the Extant Works of Ætius and the Genuine Works of Hippocrates, prepared by the renowned Adams, for the Sydenham Society. I have also laid the recent monograph, "Surgical instruments in Greek and Roman times" by Dr Milne, largely under contribution; I only regret that I had no access to the book a little earlier, otherwise much of my labour in search for descriptions of the instruments of the Greeks would have been saved. For the last five years, I have been engaged on this investigation and it was when I had nearly finished, that Milne's book was mentioned to me by the Hon'ble Mr. Justice Asutosh Mookerjee, the Vice-Chancellor of the Calcutta University and the President of the Asiatic Society of Bengal.

To complete the subject, I have added plates of nearly all the varieties of instruments; but they are more or less hypothetical as we do not possess any actual specimens of the instruments of the Hindus. Written descriptions of surgical instruments are uninteresting and often fail to convey the true idea, which could be easily made evident by the pencil. For purposes of comparison I have given drawings of instruments of the Greeks, the Romans and the Arabs, when I thought that they might be of value for the proper elucidation of my subject. I am indebted to many authors

I am indebted to many authors for some of the engravings of the instruments. I have been careful to give the source whence the borrowed ones are taken, as far as I have been able to ascertain them. If this has been omitted in any case, it is from inadvertence, not from design. My best thanks are due to them and I here acknowledge my indebtedness to the authors for availing myself of their labours without their permission. But many new illustrations will be found, and I have appended my name to those drawn by myself. These figures of the surgical instruments would be found to tally better with the descriptions of the instruments given in the Sanskrit books than the illustrations of the previous authors. The drawings of surgical instruments as given by me would look more like the figures in a modern catalogue of surgical instruments. Some of my friends could hardly believe when they saw the plates that these instruments were known to the ancient Hindus at such an early age. This feeling of amazement and incredulity as regards the surgical instruments used by the ancient Hindus has its parallel in the observations of Billroth¹ about the surgical instruments found in the excavations at Pompeii and now preserved in the museum at Naples. He says. "It made a peculiar impression upon me, when I saw before me this two thousand years old surgical armamentarium of a Roman colleague, differing but slightly in the form of the more ordinary instruments from those of our time. *As longa vita brevis*" Milne² also remarks "The works of those (Paré, Scultetus and Heister) are profusely illustrated with instruments, some of which can plainly be seen to tally exactly with the descriptions of the classical authors."

¹ Billroth's Surgery, Vol. I, Introduction, Page 7 Syd Soc. Ed

² Roman Surgical I 12, P 8

In describing the surgical instruments, I have confined myself strictly to the texts of the authors and commentators whom I have quoted, and have given the original Sanskrit passages in the foot-notes. These will be of great help to scholars who will try to study the subject at first hand, and prosecute further historical inquiries. The references in the foot-notes do not refer to pages of any particular edition of the work, as such pagination causes inconvenience to the readers who may not secure the edition in question; so we have given the section, and chapter of the book which will be found in any edition.

In the translations of Sanskrit passages, I have endeavoured to follow the original as closely as possible, except where a somewhat free rendering was necessary to make the meaning clear.

The dates of the ancient Hindu authors of Sanskrit medical books cannot be ascertained with certainty. In the first chapter I have endeavoured to discuss briefly their approximate ages. But as I have compared the surgical instruments of the ancient Hindus with those of the Greeks, Romans and Arabs, a concise summary of the chronological dates of the Greco-Roman, Arab, and the later authors would be a great help in the proper elucidation of my text.

<i>Authors.</i>	<i>Date.</i>
Pythagoras	... 580-504 B.C.
Megasthenes	.. 300 B.C.
Ktesias	.. 400 B.C.
Hippocrates	460 B.C.
Haro of Al	280-222 B.C.

<i>Authors.</i>	<i>Date.</i>
Dioscorides	First century A.D.
Celsus	25-30 B.C. to 45-50 A.D.
Scribonius Largus ..	45 A.D.
Soranus	First century A.D.
Rufus of Ephesus ..	98-117 A.D.
Galen	131-201 A.D.
Marcellus Empiricus	300 A.D.
Antyllus	3rd century, A.D.
Oribasius	326-403 A.D.
Theodore Priscianus	4th century A.D.
Caelius Aurelianus.	4th or 5th century A.D.
Moschion	5th century A.D.
Actius	5th century A.D.
Alexander of Tralles	525-605 A.D.
Paulus Aegineta	660 A.D.
Scrapion	800 A.D.
Rhazes	850-932 A.D.
Haly Abbas	After 950 A.D.
Avicenna	980-1037 A.D.
Abul Cassim	x 1106 A.D.
Avenzoar	x 1162 A.D.
Paré	1509-90 A.D.
Scultetus	1650 A.D.
Heister	1739 A.D.

I can not suffer this work to go forth without offering at least an explanation of, if not an apology for, the delay which has occurred in the publication of this thesis. It is wholly due to the accidental fire which reduced the types and the blocks

for this work to ashes and destroyed a part of the manuscript. This portion had to be written again. Again the task of reading proof sheets was laid on me entirely. The occupation of a laborious profession encroached on my time; and I was not fortunate enough to secure the co-operation of any worker in this field of research. The result might be anticipated and no one is more conscious of the unsatisfactory issue than myself. I had no experience in proof reading, and so mistakes are not uncommon. Some of the errors will be found corrected in the corrigenda. As regards the corrections of many of the proof sheets of the Sanskrit foot-notes I was assisted by my son Hirendranāth Mukhopādhyāya, who helped me much in getting this book completed. The author will feel obliged if informed of any errors that may be detected and of references to informations which ought to have been given, and also for any hints that may make a future edition more useful to the readers. But I have this consolation in my mind that I have not pushed this work through the press hurriedly or prefunctorily and I have done my best. I have laboured with the usual drawbacks of an active professional life and if this be admitted by the critic as an excuse for errors and failures, I shall be grateful to him.

A copious index has been provided for this work, whereby anything material in the whole book may be readily found out, of which it may be said that it wants no other advantages than such as the author had not power to give.

It would not be out of place here to mention that part of this essay was read before the Asiatic Society of Bengal in June, July and August 1908. The learned President in his annual address remarked as follows. In the course of the last

session Dr. Girindranath Mukerjee submitted to the society a paper of considerable extent, in which he elaborately examined the subject of the surgical instruments of the ancient Hindus. The questions he has raised, as to the priority of Hindu medicine over that of the Greeks, the Romans and the Arabs, are likely to arouse controversy, but in whatever way the question of priority may be decided, it seems to me truly remarkable that the descriptions given in our most ancient books on medicine, of the surgical Instruments then in use, should bear a close resemblance to the descriptions given not only in Greek, Roman and Arab medical writings but in many cases with the descriptions given in modern works on surgery. I trust that this subject, so peculiarly Indian, will not be left alone and will receive the attention from investigators which it undoubtedly deserves ”¹

As regards the transliteration of Sanskrit words, we have employed the method adopted in the Congress of Orientalists and circulated in the Journal of the Royal Asiatic Society, ignoring in fact, the unpleasant characters of the Sacred Book of the East.

¹ Journal and Proceedings of the Asiatic Society of Bengal, Vol V, 1909, Annual Address, p XXX.

I

SANSKRIT AND ALLIED ALPHABETS.

अ a	ओ o	ट ṭ	ब b
आ ā	औ au	ठ ṭh	भ bh
इ i	क k	ड ḍ	म m
ई ī	ख kh	ढ ḍh	य y
उ u	ग g	ण ṇ	र r
ऊ ū	घ gh	त t	ल l
ऋ ṛ	ङ ṅ	थ th	व v
ॠ ṝ	च c	द d	श ś
ॡ ṝ̄	छ ch	ध dh	ष ṣ
ऌ ṝ̄̄	ज j	न n	स s
ए e	झ jh	प p	ह h
ऐ ai	ञ ñ	फ ph	ळ ḷ

* (Anusvara) m

s (Avagraha) '

^ (Anunāsika) ṁ

Udātta ˆ

; (Visarga) ḥ

Svarita ˘

× (Jihvāmūliya) ḥ

Anudātta ˙

× (Upadhmanīya) ḥ

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and commentaries. Vāgbhata I,—Astāṅga Samgraha, his age, edition and commentary, Vāgbhat II Astāṅga Hrdaya Samhitā, editions and commentaries, Vāgbhatā III—Rasa Ratna Samuccaya, Mādhavakara:—Nidāna; Vṛnda Madhava —Siddhaṃśoga; Cakrapāṇi-datta.—Cikitsāśāra Samgraha, editions, Śāraṅgadharā —Śāraṅgadharā Samgraha, editions and commentary, Bhāva Miśra.—Bhava Prākāśa, editions.

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60—89

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 Dvipumukha or Panther forceps. Mārjānamukha or Cat forceps. Śigālamukha or Jackal forceps. Airbhāuka or Deer forceps. Kākamukha or Crow forceps. Kaṅkamukha or Heron forceps. Kuraramukha or Osprey forceps. Cāsamukha or Blue-Jay forceps. Bhāsamukha or Eagle forceps. Śaśaghātīmukha or Hawk forceps. Ulukamukha or owl forceps
 Cillamukha or Kite forceps. Syenamukha or Vulture forceps. Cirdhrāmukha or Falcon forceps

Kiaññeamukha or Curlew forceps. Bhrngarajamukha or Butcher-bird forceps. Añjalikampa forceps. Arabhāñjanamukha forceps. Nandimukha forceps. II The Sandaṁśa or Pincher-like forceps. Forceps with and without handles. Forceps with Smooth and rough ends. Epilation forceps. Mucutī or Mucundi. Vamśabidala or Bamboo forceps. III Tāla-Yantra or Picklock-like instrument. Ectāla and Dvītāla. The Ear-scoop. IV The Nāḍi-Yantra or Tubular instruments. Kañṭhaśalyāvalokini or Throat speculum. Pañcamuka and Trimukha. Tubular instruments for inspection of arrows. Śalyaughātani. The Impellent. Tubular instruments for Piles—for inspection and medication. Śamī. The Rectal Speculum. Caloptei. Tubular instruments for the Fistula-in-ano. Tubular instruments for the nose. Nasal Speculum. Nathu-karani and Yamaka-nathu-karani. Nasal tubes. The Aṅgulī-trāṣaka or Finger-guard. Yoni-Vranekṣana or Vaginal Speculum. Dioptei. Bivalve Speculum. The tubular instruments for wounds—Vrana-vasti or Wound-Syringe. Tubular instrument for ascites. Dākodara yantra or Canula. Tubular instruments for Hydrocele. Tubular instruments for rectal stricture. Tubular instruments for injection into the rectum—Vasti. Yantra or Rectal clyster. Uttaravasti or methial, vaginal and uterine tubes. Catheters. Tubular instruments for inhalation and fumigation. Disinfection of rooms, clothes &c. Tubular instruments for cupping. Śṛnga or horn. Alābu Yantra or gourd. Ghat Yantra. V Śalaka

or rods Earthworm probes Arrow probe
 Snake's hood probe Fish-hook probes. The
 Śāṅkus; Swab probe Spathomele or spatula
 probe Spoon-shaped probes. Cyathiscomele
 Nail-shaped probes Jāmvavauṣṭha probe.
 Gamma-shaped probe and the aṅkuśa cautery.
 Collyrium probes Karṇa Śodhana or Ear-
 cleaner. Garbha-Śāṅku or Fœtus or Traction
 hook Yujña-Śāṅku or Midwifery forceps
 Sarpa-ḥaṇa or snake's hood-like rods Stone
 extractor. Hippocratic oath Sarapuṅkha-
 mukha Probe Arddhacandiamukha or Half-
 moon Probe. Bone Lever. Director Urethral
 Probe VI. The Upayantra or Accessory
 Instruments Rajju or thread, Venikā or
 twine; Patṭa or Bandages, Abdominal binder,
 Field Hospital, Dressings Carma or leather .
 leather bandage, leather ligatures. Yantra-
 Śaṭaka or Lithotomy Strap or binding ap-
 paratus, Pāśa Leather bags Śirovasti or
 leather-bag for the head Leather Band.
 Leather Bottles, Jars, etc Antarvalkala or
 Barks The crutches, Tendrils of creepers or
 Latā Vāstra or cloth Aṣṭhulāsma or stone.
 Mudgara or Hammer. Pāṇpadatāla or hand
 and foot Anguli or fingers Jihvā or tongue.
 Danta or tooth Nakha or nails Mukha or
 mouth Vāla or hair Probang. Suture
 material Aśvakataka or the ring of a horse's
 bridle. Śākhā or branch of a tree Sṭhīvana
 or spittle Pravāhana or fluxing the patient.
 Haia or Happiness Ayaskānta or Load-stone.
 Kṣāra or Caustics or Potential cautery Agni
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 or saw Vrdhipatia—dirghavaktra and hasva-
 vaktra—the long and short-mouthed knives
 Hypodermic medication Nakhaśastra or Nail-
 parer. Mudrikā, angulśastra or finger or
 ring-knife Utpalapatia, Phlebotome. Aiddha-
 dhāra, Cakradhāra, adhyardhadhāra Suci or
 needles—curved, half curved and straight.
 Javamukhī needle Kuśapatia Ātīmukha
 Śarīmukha or scissors Antarmukha aiddhacan-
 drāvana or half-moon-faced scissors Aiddha-
 dra knife Tikūccaka, kūcca, khaja Kuthā-
 rikā Vrihimukha or trocar Ālā or awl,
 Kama-vedhanī or ear-perforator. Juthikā, Pāni-
 mantha. Karmāra or nālī. Vetaspatraka
 Vagīśa or sharp hook, Danta-Śanku or tooth-
 scaler. Danta-lekhana or tooth-scaler. Bhī-
 pada E-ani or sharp probes; needle-shaped
 probes, Kumvaka probes The operation of
 couching of cataract Yavamukhī Śālā.
 Sarpāśya Gold or silver knife Pratuda The
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 • Medicine glass Dropper Grind-stone Stone and iron mallet

CHAPTER IX.

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CORRIGENDA.

Page	n	F N 3		
,	xi	Para 5		
,	xi		F N 1	
,	xix		, 1	read Mahāvagga for Mohāvagga
,	82	line 4	, 1	
,	116	, 23	, 5	
,	182	, 10, 15	, 2	
,	x	, 10		
,	202	, 1 of para 5		
,	208	, 2 & last line		
,	262	, 12		
,	308		, 1	, diagnosis , diagonosis.
,	317	, 10		
,	319		3	
,	320	, 5	, 1	
,	xhi		, 2	, Vijaya Vejaya
	xv			Bibliotheca , Bibliotheca
,	3		, 1 & 2	, Macdonell , Macdonnel
,	303		, 1	
,	4		, 1	, Dārila , Darila
,	17	7		, Bhānumati , Vānumati
,	27	item 8		, Raba , Robi
,	30		, 1	
,	12		, 3	, Archaeo , Archaeo
,	81			, Śārngadhara , Śārangadhara
,	35	13		, Skilful , Skilful
,	40	, 8		, Sesame , Sesame
,	37	, 11		, Bhūrya , Bhūrya
,	39	, 23		, Water and , Water,
,	40	14		Mortar Mortar
,	70		, 3	
,	71		, 1 & 3	, Vrdāha , Vrdhaya
,	87	2 & 4		
,	88	, 13		, Kapāta , Kapāta
,	99	, 8		, Pālakāpya , Pālakapya
,	109	, 8		, Śalya , Salya.
,	117	, 5		, bamboo , bambu.
,	119	19		Barnes? Barnes
,	120	1		Sorts Sorts

Page 159	line 13	...	read Jāmvovaustha	for Jāmvovauſtha.
" 178	item 10	"	Cina	" China
" 181	"	" 2	Obstetric	" Obstetric
" 196	line 12	"	Gayadāsa	" Gayadāssa.
" 219	" 14	"	Sesamum	" Sesum
" 219	" 21	"	effectual	" effectual
" 221	item 3	"	Pācana	" Pāchana
" 212	line 2	"	Parietes	" Parictis
" 262	" 10	"	Round four	" four cornered
			cornered	round.
" 285	" 15	"	Hippo	" Hyppo
" 295	" 3	"	Requisites	" Requisites.
" 306	" 11	"	Yastu	" Yasti
" 311	item 2	"	octagonal	" octogonal
" 328	" 3	"	hātā	" hata
" 331	line 18	"	Jolly	" Jolley.
" 340	" 5	"	Physician	" Physician
" 340	" 18	"	ambar	" ambar
" 348	" 2	"	Parāmaha	" Parāmoha
" 352	" 22	"	Furoz	" Furoz.
" 354	" 11	"	Areca	" Arecha
" 355	" 12	"	Dvārusita	" Dāvrusita

WORKS BY THE AUTHOR.

1. Muscles of the Human Body, arranged in Tabular forms.
Fourth Edition. Re. 1

2. Tropical Abscess of the Liver

Thesis approved for the degree of Doctorate in Medicine,
Madras University Rs. 5

3. Glossary of Indigenous Medicinal Plants.

(In the Press)

4 Notices, Biographical and Bibliographical, of the Indian
Physicians and their Works on Medicine.

(In the Press)

5. Medicine in the Vedic times.

(In preparation)

THE STAR MEDICAL HALL,
80, Russa Road North, Bhawanipur,
CALCUTTA.

THE Surgical Instruments of the Hindus.

CHAPTER I INTRODUCTION.

ANCIENT MEDICAL AUTHORS AND THEIR WORKS.

The Science and Art of Medicine, like many other different branches of learning originated with the Hindus. They consider the art of healing as an Upaveda and it is generally known as Āyurveda, that is the art of prolonging life. Like the Vedas, they trace the origin of the science to God, the fountain of all true knowledge. Bramhā transmitted this heaven-born science to this world for benefit of the mortals in one of the sacred writings, the Āyurveda.

It was composed as a sub-division of the Atharva Veda and consisted originally of a *lākṣa slokas* or a hundred thousand stanzas, divided into a thousand chapters. Then considering the short span of life and inadequate intelligence of man, he divided the book into eight parts¹ as follows —

¹ तद्यथा ॥ श्रुत्यं शालाक्यं कायचिकित्सा भूतविद्या कौमारभृत्यमगदतन्त्रम्
रसायनतन्त्रं वाजीकरणतन्त्रमिति ॥

Suśruta Saṁhitā, I. 1.

कायचिकित्सा शालाक्यं शन्यहर्षकं विषगरवैरीषिकप्रश्ननं भूतविद्या कौमारभृत्यकं
रसायनानि वाजीकरणमिति ।

Caraka Saṁhitā, I. xxx

वेदो ह्याथर्वणः स्वर्गः यनवलिमङ्गलह्रीमन्मित्रसमायश्चिन्तोपवासमन्त्रादिपरिहङ्गान् चिकित्सां

- 1 Śalya Tantra or Major Surgery
- 2 Śālākya Tāntia or Surgery of parts above the Clavicles.
- 3 Kāya Cikitsā or Inner Medicine.
- 4 Bhūtadṛyā or Demnology
- 5 Kaumārabhr̥tya or the Science of Pædiatrics.
- 6 Agada or Toxicology.
- 7 Rasāyana or Treatment to prolong life.
- 8 Vājīkaraṇa or Treatment to stimulate the sexual power.

The book is no more available now, Suśruta being the authority for the above information ¹

A different view is held by others, who trace the origin of Hindu Medicine in the verses of the R̥gveda ²

¹ इह खल्लायुर्वेदी नाम यदुपाङ्गमथर्ववेदसंग्रान्त्वादैव प्रजाः श्रीकशतसहस्र-
मध्यायसहस्रञ्च कृतवान् स्वयम् । ततोऽन्यायुङ्गमस्यमेधक्षाच्चावलीक्य नराणां भूयोऽष्टधा
प्रणीतवान् ॥

Suśruta Saṁhitā, I 1.

तत्र चेत् प्रष्टार स्युः चतुर्णां कसामयजुरथर्ववेदानां क वेदमुपदिशन्त्यायुर्वेदविदः ।
किमायुः कष्मादायुर्वेदः किञ्चायमायुर्वेदः शाश्वतोऽशाश्वत इति । कानि चासंग्रानि
कशायमध्यातव्यः किमर्थञ्चेति ॥

तत्र भिषजा पृष्ठेनैव चतुर्णां कसामयजुरथर्ववेदानां आत्मनीऽथर्ववेदे भक्तिरादेश्या ।

Caraka Saṁhitā, I, xxx

The origin of medical science, as quoted in the above passage of Caraka, does not however agree with the view expressed by the author in the Sūtra Sthāna, Ch. I (See footnote I. P 4) In Ch. XXX, we find that an attempt had been made to make a compromise between the two views of Agniveśa and Suśruta. Evidently this was the work of a later redactor, possibly Drdhaṇala

न ह्यायुर्वेदसंग्रामूर्त्तिरूपत्वमिति । अथवावर्षीपदेश्यामेतद्वै द्वयमधिकृत्य चत्यति-
मुपदिशत्येके स्वाभाविकशास्त्र लक्षणमधिकृत्य यदुक्तम् इह चायं चाध्याये * * * ॥

² अथवेदसंग्रान्त्वेद उपवेदः

Caraka Saṁhitā, I, xxx

Vyūha by Vy

ATHARVA VEDA.

“On examining the contents of the Atharva Veda more in detail, we find that the hostile charms it contains are directed largely against various diseases or the demons which are supposed to cause them. There are spells to cure fever (takmān), leprosy, jaundice, dropsy, scrofula, cough, ophthalmia, baldness, lack of vital power, fractures and wounds; the bite of snakes or injurious insects, and poison in general; mania and other ailments. These charms are accompanied by the employment of appropriate herbs. Hence the Atharva Veda is the oldest literary monument of Indian Medicine”¹ This Veda can not belong to a period later than 1000 B C, but possibly earlier² It exists in the recensions of two different schools. That of the Paippalāda is only known in manuscript, discovered by Prof. Buhler in Kashmir and described by Prof. Roth in his tract *Der Atharva Veda in Kaschmir* (1875) The printed text, edited by Roth and Whitney in Berlin 1856, gives the recension of the Śaunaka School.³ It has been translated into English Prose by Whitney, 2 Vols., into English verse by Griffith, 2 Vols., Benares, 1897, and with the omission of the unimportant

¹ McDonnell's Sanskrit Literature, P. 196

अथर्ववेदस्य * * * * चतुर्थं वेदत्वेऽपि प्रायेणाभिचारव्यर्थत्वादयज्ञविद्यायामनुप-
योगानिर्दिष्टः । तथाहि ऋग्वेदेनैव हौत्रं कुक्षं यजुर्वेदेनाव्ययं सामवेदेनैवात्र
यदेव त्रयै विद्याय सूक्तैर्न ब्रह्मत्वमितिश्रुते स्वयीसम्पाद्यत्वं यज्ञानां ज्ञायते ।

Kallūka Bhaṭṭa's Commentary on Manu Samhitā, Ch. III, Śloka I.

² On the date of Atharva Veda, see pp. CXL—CLXI, Prof. Lanman's Edition of Whitney's Transl., Prof. McDonnell's Sanskrit Literature, pp. 185—201

³ I ex Ver. ram in the Journal of the Am. Or. Soc. Vol. XII

hymns, by Bloomfield¹ into English Prose, with notes, in Vol XLIII of the Sacred Books of the East.

CARAKA SAMHITĀ

In the Caraka Samhitā we find that Brahmā taught Dakṣa the science of medicine, Dakṣa became the preceptor of the Aśvin twins, they in their turn became the teachers of India and Indra imparted this knowledge to Bharadvāja who was sent by a conclave of sages to learn the art for the welfare of the human race.² Bharadvāja had Punarvasu Ātreya and the others as disciples. Ātreya's students were Agniveśa, Bhela Jatakarna, Pañāsura, Hārīta and Kṣātrapani, all of whom became celebrated as the authors of treatises on Medicine; the Caraka Samhitā being a revised and improved edition, of the treatise of Agniveśa, which was declared to be the best production. Caraka did not, however, redact the whole

¹ He has also edited the Kauśika Sūtra of the Atharva Veda, with extracts from the commentaries of Dārīta and Keśava (see Vol. XIV Journ. Am. Orient. Soc.). It is very useful as a help to the proper understanding of the meaning of a hymn.

² दीर्घजीवितसंविच्छन् भरद्वाज उपगमत् ।
इन्द्रमुद्यतपः बुद्धा शरण्यमसरेश्वरम् ॥
ब्रह्मणा हि यथा प्रीतमायुर्वेदं प्रजापतिः ।
जथाह निखिलेनादावश्विनो तु पुनस्ततः ॥
अश्विभ्यां भगवान् शक्रः प्रतिपेदे ह केवलम् ।
अविप्रीतो भरद्वाजस्तस्माच्छक्रमुपागमत् ॥

Caraka Samhitā, I i.

³ अथ मैत्रीवरं युज्यमायुर्वेदं पुनर्वसुः ।
शिष्येक्षी दत्तवान् षडभ्यः सर्वभूतानुकम्पया ॥
अग्निर्वैश्वं भेलश्च कतुकर्णः पराशरः ।
हारीतः क्षारपाणिश्च जगद्भक्तमुनेर्वचः ॥
बुद्धेर्विशेषस्तवासीद्वीपदेशाकारं मुनेः ।
ततश्च कर्त्ता प्रथममग्निर्वैशी यतीऽभवत् ॥
अथ भेन्नादयश्चक्रुः स्व स्व तस्त कृतानि च ।
आवयामास्तुनेश्च सर्पिसङ्गं मुनेधमः ॥

book;—the last forty-four chapters¹ were edited by Drdha-vala,² a native of Panchanadapura, long supposed to refer to Punjab (the land of five rivers) but at present identified with a town in Kashmir by Dr. Hoernle.³ Two other works, the treatises of Bhela and Hārīta, are still extant, the former existing in manuscript in the Tanjore Library⁴ and the latter as printed texts by *Kuvirājes* K. C. Sen and B. L. Sen, of Calcutta.⁵

Now as regards the age of Caraka, there is great divergence of opinions. The Indians generally believe him to be a Rsi of great antiquity while the European scholars try

¹ For a discussion on the part added by Drdha-vala, see Hoernle's *Studies in Ancient Indian Medicine*, J. R. A. S. 1908, P. 997-1002. Also see pp. 11-15 in the *Vanasaḍhu Darpaṇa*, Vol. I, by Kavirāja Bīrajā Charan Gupta, 1908.

² अतस्तन्नीतमसिद्धं चरकैणातिबुद्धिना ।

संस्कृतं तत् तु संसृष्टं विभागेनीपलक्ष्यते ॥

इदमन्यूनशब्दार्थं तन्ने दोषविवर्जितं ।

अखण्डार्थं दृढवली जातः पञ्चनदे पूर्यते ॥

कृत्वा बहुभ्यस्तन्नेभ्यो विशेषाच्च वलीचयम् ।

सप्तदशोषधा व्यायसिद्धिकल्पैरपूरयत् ॥

Caraka Samhitā, VIII, xii.

अग्निं सप्तदशाध्याया, कल्पाः सिद्धय एव च ।

नासाद्यन्तेऽग्निवेशस्य तन्ने चरकसंस्कृते ॥

तानेतान् कापिलवलः शेषान् दृढवलीऽकरीत् ।

तन्नेस्याभ्य महार्थस्य पूरणार्थं ययातयम् ॥

Ibid, VI, xxv

³ Hoernle's *Studies in the Medicine of Ancient India*, Part I, Osteology, Introduction, p. 2. See also his article on "The authorship of *Caraka Samhitā*" in the *Archiv für die Geschichte der Medizin*, 1907.

⁴ See Burnell's Tanjore Catalogue No. 10773 of Sanskrit Mss., P. 63.

⁵ It is doubtful whether the *Hārīta Samhitā* is the genuine work of the Rsi Hārīta. The printed text refers to Caraka *Sūsrīta* and even *Vāgbhaṭa*, who was held to be posterior to Hārīta. See the Footnote 3 P. 6.

to connect him with historical events of more modern times. Sylvain Lévi has recently discovered in the Chinese Translation of the Buddhist *Tripitaka* that Caraka was the Court Physician of the Indo-Scythian King Kaniska, in the first century A.D.¹ But the following objections are to be met with before his conclusions can be accepted as proved —

1. The age of Kaniska is not yet settled, the probable limits of his reign being from the first century B C to the second century A. D.² Moreover in the Buddhist *Tripitaka* referred to, the name of Caraka is simply mentioned as the Court Physician of the King Kaniska but there is nothing to identify him with the author of the book. The same name, found in different places, does by no means signify the same person.

2. The time assigned to Caraka by the Indian medical tradition is of great antiquity. With regard to the chronological position of the three old authors, he is mentioned as anterior to Suśruta and Vāgbhāṭa I.³

3. Dr. Rāy has pointed out that the name Caraka is patronymic in the Veda.⁴ It is quite possible that a much

¹ See Journal Asiatique—July to December 1896, p 444 to 484 and January to June 1897, p 5 to 42, also Indian Antiquary Vol XXXII, 1903, p 382 and Vienna Oriental Journal, Vol XI, p 164

² See V. A. Smith's Early History of India, P. 225-26

Dr. Fleet in J. R. A. S., 1906, P 979

Dr. Bhandarkar in J. R. A. S. (Bombay Branch), Vol. XX, P. 269

J. A. S. B. Vol XXXIX, 1870, p 65 and 126

³ चरकः सुश्रुतश्चैव वाग्भटश्च तथापरः ।

सुध्याश्च संहिता वाच्यान्निख एव युगे युगे ॥

अविः कृतयुगे वैद्यो ह्यपरे सुश्रुती मतः ।

कलौ वाग्भटनामा च गरिमा च प्रदृश्यते ।

Hārīta Samhitā, Parāśastādhyāya.

⁴ Dr. P. C. Rāy's History of Hindu Chemistry Introduction P. X.

later namesake of his, is referred to by the *Tripitaka*, just as we know that more than one Vāgbhāṭa appeared as successful physician. Again we have evidence that eminent physicians in later times were called Caraka by way of a compliment and so Vāgbhāṭa was called Caraka of Sindh or Sindhicara.

4. Pāṇini wrote special Sūtras for the Agniveśas and the Carakas.¹ These names must have been famous before Pāṇini's time, otherwise he would not have written special Sūtras for them. Prof. Goldstucker has conclusively proved that Pāṇini could not have flourished later than the sixth century B. C.²

5. Patañjali wrote a commentary on Caraka.³ He flourished during the second century B. C. Both Cakrapāṇi-datta and Bhoja allude to him as the redactor of Caraka Saṁhitā.⁴ So Caraka must have flourished long before him, for unless his work was regarded as a standard work of authority, Patañjali would not have taken so much pains to write notes on the book, and still more for issuing a redaction.

6 The internal evidence of the book itself speaks against such an assumption. There is no salutation to any deity at the

¹ कटचरकाङ्गूक । Pāṇini I. 3 107.

गर्गादिभ्यो यञ्च ॥ Ibid, 4 1 105

गर्गः वत्स । * * * * अग्निवेश * * * * पराशरः । जतुकर्णः । * * * .

² Goldstucker's Pāṇini; and Journal of the Asiatic Society of Bengal, Vol. XLII, P. 254.

³ आसीनाम अनुभवेन वस्तुतत्त्वस्य कात्वेन निश्चयवान्, रागादिवशादपि नान्यथावादी यः स इति चरके पतञ्जलि ।

Quoted in Laghumajjusa of Nāgeśa Bhaṭṭa (Rāy).

⁴ पातञ्जल—सहाभाष्य—चरकप्रतिमस्कृतैः ।

मनीषाक-कावदीवाणाम् हर्षेऽहिपतये नमः ॥

Is the salutation in the *Āyurvedarthadīpikā*.

beginning of the book,—a custom invariably found to be observed in the more modern compilations. There is complete absence of Paurāṇic theology in the Caraka Saṁhitā, nor is there any reference to Śākya Muni and his religion. Kaniska was a great patron of Buddhism, and it might naturally be expected from the Court Physician of the king to describe the charitable hospitals which we know from the edict of Aśoka, to have flourished in every quarter of India. On the contrary we find descriptions of a hospital as reserved for rich men only at their own houses. Those gods and goddesses that figure so prominently in the Purāṇas were unknown during his time.¹ Beef was not then, apparently, a

¹ No doubt the names of Laksmī, Kṛṣṇa and Vāsudeva occur in Cikitsita Sthānam, Chapter XXV, but it should be remembered that they occur in the Supplement added by Drdhavala in later times.

सर्वग्रहा न तद प्रभवन्ति न चाग्निश्चन्द्रपञ्चमीरा ।

चक्षुर्मात्रं तत्र भजते यत्र सहागन्धहृद्यस्ति ॥

पिब्यमाण इमञ्चाद सिद्धं मन्त्रमदीरयेत् ।

सप्त माता जया नाम विजयी नाम मे पिता ॥

सीद्व जयी जयापुत्री विजयीऽथ जयामि च ।

नमः पुरुषसिंहाय विश्वे विश्वकर्माय ॥

सनातनाय कृष्णाय भवाय विभवाय च ।

तेजो वषाकपेः साक्षान् तेजो ब्रह्मेन्द्रयोश्चमे ॥

यथाह नाभिजानामि वासुदेवपराजयम् ।

Caraka Saṁhitā, VI, xxv.

But Kṛṣṇa and Vāsudeva are mentioned in Pāṇini as demigods, having many adherents who formed a class. “वासुदेवार्जुनाद्या वुन” Pāṇini, 4, 3 98. Again the passage may be an interpolation of a subsequent *Vaiṣṇava* *Vaid*.

So Brhaspathya is also mentioned in Drdhavala's Supplement, as a god to be worshipped during the preparation of some medicines.

ब्रह्मघोषश्चपटहभिरैरिनिनादैः सिद्धं सितकृदकृतच्छायं गजस्तम्भसारीपयैर्गवन्त
वृषभजसभिपूज्य त स्नेह द्विभागमाचिकमङ्गलाञ्जीः स्तुतिदेवतार्चनैर्वस्त्रं गमयेत् ॥

forbidden food, for it is spoken of as an article of diet that should not be indulged daily,¹ nor should it be used in excessive quantity as it is mentioned as a cause of the disease, Vāta-Rakta²

The style of the book is antiquated and decidedly savours that of the Brāhmanas. Nāya and Vaiśeṣiki systems occur in the text,³ and so probably the book was written long before the compilation of these Sūtras.

Editions—The book had undergone several editions. It was edited by Jibānanda Vidyāsāgar, Calcutta, in 1877 and 1896 (2nd Ed.), by Gaṅgādhara Kaviratna, Berhampur, 1879, by Gupta, Calcutta, 1897, with commentary by Cakrapāṇidatta, Calcutta, 1892-93, by Jaśodānandana Sarkār, with Bengali translation, 1894.

Translations—It had been translated into English by A. C. Kaviratna, Calcutta, 1897. Caraka was translated from Sanskrit

And we find that the antidote to poison called महागन्धहस्ती is said to have been told by Tryambaka (Śiva) to Baiśravaṇa (Kuvera).

अगर्हाऽयं वैश्रवणाख्यातकृत्स्नकेण षष्टिभिः ।

Caraka Saṁhitā, VI. xlv.

Also we find the name of Kārttikeya mentioned in Sec. IV. ch. viii.

प्रसूतं त्वमविक्षिप्तमविक्षिप्ता शुभानने,

कार्त्तिकेयश्रुतिं पुत्रं कार्त्तिकेयाभिरक्षितमिति ॥

¹ कुञ्चिकाश्च किलाटांश्च शौकरं गन्धमाभिष ।

मत्तान् दधि च माषाश्च यावकाश्च न शीलयेत् ॥

Ibid, I. v.

² कुलत्थमाषनिष्पावशाकादिपल्लवेषुभिः ।

दध्नारनालमौवीर्युक्रतकसुरामैः ॥

Ibid, VI.

into Arabic in the beginning of the eighth century and his name "Sharaka Indianus" occurs in the Latin translations of Avicenna, Rhazes and Serapion. "A translation of the Karaka¹ from Sanskrit into Persian and from Persian into Arabic is mentioned in the Fihrist, (Finished 987 A.D.). It is likewise mentioned by Albērūnī², the translation is said to have been made for the Barmekides. Albērūnī's chief source on Medicine was "Caraka, in the Arabic Edition of Ali Ibn Zain, from Trabaristan."³

Commentaries.—

1. Patañjali—2nd century B.C.—not available
2. Cakrapānidatta's Caraka Tātparyā Tikā, or Āyurveda-dīpikā⁴—1060 A.D.
3. Haricandra⁵—1111 A.D.—not available.
4. Śībadāsa's Caraka-Tattva-Pradīpikā
5. Gaṅgādhar's Jalpa-Kalpa-Taru—1879 A.D.

¹ Proceedings of the As Soc, Bengal, 1870, September

² Renaud, *Memoire sur l'Inde*, P 316

³ Maxmuller's Science of Language, Vol I., P 168, Foot Note.

⁴ Sachau's preface to India, P XL.

⁵ See Caraka Saṁhitā with Cakrapānidatta's Commentary by Kavirāja Harināth Viśārada, Calcutta, 1897.

⁶ A Commentary written by Haricandra is referred to in the Sanskrit Ślokas narrating the geneology of Maheśvara, the author of Viśvaprakāśa and Sāhasāṅkacanta, who flourished during the reign of Sāhasāṅka, king of Gazipur in 1033 Saka (1111 A.D. Wilson).

श्रीसाङ्गसङ्गपतेरखवदिविद्य-

वैद्यीकरत्न पदपद्धतिमेव विभक्तम् ।

यस्यन्दचारुचरितो हरिचन्द्रनामा

सर्गाष्टमः चरकतन्त्रमर्चनम् ॥

SUSŪRUTA SAMHITĀ.

The next treatise on Hindu Medicine is the *Suśruta Samhitā*. *Suśruta* was the son of the sage *Viśvāmitra*,¹ a contemporary of *Rāma*. He learned the Science of Medicine from *Divodāsa*, surnamed *Dhanvantari*, king of Benares, at his Himalayan retreat. According to *Suśruta*, *Divodāsa* was the incarnation of *Dhanvantari*, the celebrated physician of the gods in heaven, and he first propounded the Art of Healing in this world.² *Suśruta* represented the Surgical School while *Caraka* was pre-eminently a Physician in practice.

• As regards the authorship of the book, opinions differ. To *Suśruta*, *Dhanvantari* addressed his lectures on Major Surgery,³

¹ *Mahābhārata*, *Anuśāṣana Parva*, Ch. 139, Vs. 8-11.

धन्वन्तरिर्धर्मभृतां वरिष्ठो वाग्बिशारदः ।

विश्वामित्रात्मजदक्षि शिष्य सुश्रुतसखशात् ॥

Suśruta Samhitā, V. ii.

•

अष्टाङ्गयज्वेदविदं दिवीदासं महामतिं ।

किन्नशास्त्रार्थसन्देहं सूक्ष्मागधमिवोदधिं ।

विश्वामित्रसुतः श्रीमान् सुश्रुतं परिपृच्छति ।

Ibid, VI. lvi.

सर्वशास्त्रार्थतत्त्वज्ञं सपीदृष्टिं रुदारथी ।

वैश्वामित्रं शशासाय शिष्यं काशिपतिर्मुनिः ॥

Ibid, VI. xxviii.

² अथ खलु भगवन्तममरवरसमिगणपरिहृतमाश्रमस्थं काशिराजं दिवोदासं धन्वन्तरि-
मोपध्वजवैतरणीरभयोक्तालावतकरवीर्यगोपुररक्षितमुश्रुतप्रभृतय ऊचुः ।

Ibid, I. 1.

³ अत्र कश्चै किमुच्यतानिति । त ऊचुः । अस्माकं सर्वेषामेव शल्यज्ञानमूलं
कृत्वोपदिशतु भगवानिति । स उवाचैवमस्त्विति । अस्माकमेकमतीनां मतमभिसमीक्ष्य
सुश्रुती भगवन्तं मथ्यति ।

Ibid I

which he reproduced in this work. But in the opening lines of the book, salutation is offered to Brahṃā, Dakṣa, Aśvins Indra, Dhanvantari, Suśruta and others¹. This shows that Suśruta can not be the author of the work or at least of the work in its present shape, for no author can offer salutation to himself. By "the others" are no doubt meant the notable surgeons who practised and taught the Science of Surgery and who were either contemporary with or posterior to Suśruta. Possibly the original Suśruta Saṃhitā had been recast and the redactor could appropriately offer a salutation to the original author and to other surgeons who flourished before him. There is also an Indian medical tradition, noted in Dallapacārya's Commentary, which assigns the improved and supplemented edition of Suśruta's original work to Nāgārjūna,² the celebrated Buddhist Chemist, who is said to have been a contemporary of the king Śātvāhana.³

In the third chapter, Suśruta enumerates the subjects described by him,—the chapter forming an index of the book. Therein he mentions the five principal divisions of his book and says that the Uttara Tantra or the Supplement would be

¹ नमो ब्रह्मप्रजापत्यशिवबलमिह्वन्तारिसुश्रुतप्रवृत्तिभ्यः ।

Suśruta Saṃhitā, I

² यत्नं यत्नं परीक्षे निरीक्षणं तद्वै प्रतिसंस्तुं सूत्रं ज्ञातव्यमिति । प्रतिसंस्तुं यौपीयं नागार्जुन एव ।

Dallapacārya's Commentary to Suśruta, I 1.

See also Dr Cordier's *Recentes Decouvertes*, pp 12-13.

³ See Harsacarita by Vāṇa.

Beals *Buddhist Record of the Western World*, Vol II, P. 209, 212, 216.

Burgess' *Archaeological Survey of S. India*.

Introd. a hist r u Budh. In P 308.

described afterwards.¹ Now the fact that the sixth part was appended to the work as a Supplement or Uttara Tantra (i.e., after treatise) clearly shows that it was written afterwards by another surgeon and added to the original treatise. If the original Suśruta wished to have six divisions of his book, he would have mentioned it clearly in the index and would not have, after stating that his book consisted of five parts, added that "the Supplement would be described afterwards,"² which seems to be an interpolation of the Supplementor to pass his edition as the original work of the author. Again at the end of the fifth section, there is a passage describing the importance of the Āyurveda, which was meant as the conclusion of the book by the author.³ It is to be noted

¹ प्रागभिहित सविशमध्यायशत पञ्चसु स्थानेषु । तत्र सूत्रस्थानमध्यायः षट्चत्वारिंशत् । षोडश निदानानि । दश शरीराणि । चत्वारिंशच्चिकित्सितानि । अष्टौ कल्पाः । तदुत्तर षट्षष्टिः ।

अध्यायानां शतं विंशमेवमेतदुदीरितम् ।

अतःपरं स्वनान्नैव तन्मुत्तरमुच्यते ॥

Suśruta Samhitā, I. iii.

² बीजं चिकित्सितमैतत् समासेन प्रकीर्तितम् ।

सविशमध्यायशतमस्य व्याख्या भविष्यति ॥

तत्र सविशमध्यायशतं षष्ठसु स्थानेषु । तत्र सूत्रस्थाननिदानशरीरचिकित्सितकल्पे-
ध्वयवशात् सविभज्योत्तरे तन्मे शेषानर्थान् व्याख्यास्यामः ।

Ibid, I. 1.

³ सविशमध्यायशतमेतदुक्तं विभागशः ।

इहोद्दिष्टाननिर्दिष्टान्सर्वान् वक्ष्याम्युत्तरे ॥

सनातनत्वाद्देदानामचरत्वाच्चैव च ॥

तथाहुंष्टफलत्वाच्च हितत्वादपि देहिना ।

वाक्समूहार्थविज्ञात् पूजितत्वाच्च देहिभिः ॥

चिकित्सितात्पुण्यतमं न किञ्चिदपि सुश्रुत ।

ऋषेरिन्द्रप्रभावमाश्रितयोनिर्भिषग्गुरोः ॥

धारयित्वा तु विमलं मतम् परमसम्मत ।

उक्ताहार समाचारैश्च प्रैल च सीदते ॥

that at the end of no other sections do we find a similar passage. He also writes "Thus one hundred and twenty chapters are described" but adds "The other diseases shall be described in the Uttara Tantra": the latter part no doubt is an interpolation of the Supplementor. Moreover, in the opening lines which serve as a preface to the sixth part, the authority quoted for the diseases of the eye is Nimi, the king Janaka of Mithilā and not Dhanvantari.¹ But in the first chapter of the first section, it is described that the sages wanted Dhanvantari to teach them Śalyatantra or Major Surgery only and he consented to their request. And this subject he treated in detail in the five sections of the book. In the Supplement, on the other hand, are described the other branches of the science such as Minor Surgery, Inner Medicine, &c. Probably this part was added afterwards to give completeness to the treatise, and the original Suśruta was called Vṛddhya or the Old by the commentators to distinguish him from the Supplementor.

Suśruta's work is specially important to us as having two whole chapters (vii and viii of Section I) devoted to the descriptions of Surgical Instruments and one whole chapter (xxv of Section I) to the principles of Surgical Operations

The age of Suśruta is also involved in obscurity. Nothing can be ascertained from the fact that he was a son of Viśvāmītra²,

¹ अथायानां शते विंशे यदुक्तमसङ्गम्या ।
 वक्ष्यामि बहुधा सन्धमुत्तरेऽर्थानि सानिति ॥
 इदानीन्तत् प्रवक्ष्यामि तन्ममुत्तरमुत्तमं ।
 निखिलेनीपदिश्यन्ते यत्र रोगा पृथग्विधाः ॥
 शलाक्यशस्त्राभिहिता विदेहाधिपकौर्त्तिता ॥

Suśruta Saṁhitā, VI 1.

² Viśvāmītra is the gotra name so the complete name may be taken to refer to the great Viśvāmītra or to his descendant.

for the age in which the latter lived is not known to us. But he must have flourished during the Vedic Age as many Vedic Hymns are ascribed to him. In the Mahābhārata, Suśruta is mentioned as one of the sons of Viśvāmitra¹ and in the Suśruta Saṁhitā the author is often described as his son. The age of the great epic has, with good reasons, been fixed at 1000 B.C. So Suśruta must have flourished much earlier. The latest limit which we can assign to Suśruta is 600 B.C. as "there are indications in the *Śatapatha Brāhmaṇa*, a secondary Vedic work, that the author of it was acquainted with the doctrines of Suśruta" as regards the Osteology. "The exact date of that work is not known, but it is with good reason referred to the sixth century B.C." Again in the Atharva Veda, in the tenth book, there is a hymn on the creation of man in which the skeleton is described according to Ātreya and Suśruta.² "The large portion of it (Books I to XVIII) indeed admittedly belongs to a much earlier period, possibly as early as about 1000 B.C., and the hymn in question is included in this older portion". This shows that Suśruta could not have flourished later than 1000 B.C.

Again in Hasti-Āyurveda, a book on the Treatment of

¹ श्वामाद्यनीत्य गार्ग्यश्च जावलिमुश्रुतस्तदा—

* * * * *

विश्वामित्रात्मजाः सर्वे सुनयी ब्रह्मवादिनः ॥

Mahābhārata, Anuśāṣana Parva, Ch. IV.

² See J. R. A. S., 1906, P. 915, 1907, P. 1

³ Hoernle's Studies in the Medicine of Ancient India, Part I. Osteology, Introduction P. 9

Elephants by Palakāpya, we find the Surgical instruments described after the manner of Suśruta. Palakāpya lived as a Veterinary Surgeon in the Court of Romapāda, King of Aṅga, which had as its capital the famous town of Campā, identified with the modern town of Bhāgalpur. King Romapāda was contemporary with king Daśaratha, the father of Rāma, the hero of Rāmāyana¹ Here we have a corroborative evidence of the age of Suśruta.

Suśruta is mentioned in the *Vārttikas* of Kātyāyana² who flourished during the fourth century B.C.

We have alluded to Nāgārjūna,³ the Buddhist Chemist, as the redactor of the Suśruta Saṁhitā. He is said to have been a contemporary of king Kanīṣka that is about the first century B.C.

Another revision was undertaken by Candrāṭe, the son of Tisaṭa, the author of *Cikitsā-kalikā*. He revised the text which must have fallen then into a state of corruption. The probable date of Candrāṭe is the ninth century A.D.⁴

¹ अग्निं सुनुषमाश्रया पितरं च यशस्विनम् ।

एतस्मिन्नेकाले तु रोमपाद प्रतापवान् ।

Rāmāyana, Vālakāṇḍam, Ch IX.

See also Rāmāyana, i, 11, 13-20, Mahābhārat, iii, 110, 10008-9, Bhāgavat, ix, 23, 7-10

² सुयुतेन प्रोक्तं सौम्यतम् ।

³ Possibly more than one Nāgārjūna appeared in ancient India as a chemist. Albērtūni says "He lived nearly a hundred years before our time" (India, I. P. 189) Rājtarāṅgi places him in the 3rd century B.C. (I. Vs. 172-173) The modern scholars are of opinion that the founder of the Mahāyāna system lived in the first century A.D.

⁴ Osteology p 100.

There is no doubt of the tradition that Suśruta's work was redacted, for the author could not write such a passage as follows : "The surgical treatises of Aupadhenava, Aurabhra, Suśruta and Pouṣkalāvata from the basis of other treatises on the subject."¹

*Commentators.*²—

1. Cakrapāṇidatta—Vānumatī—1060 A.D.
2. Gayadāsa—{Nyāya Candrikā }—11th century A.D.
 {or Pañjikā }
3. Jejjatācāryya
4. Bhāskara.
5. Mādhava.
6. Brahmadēva.
7. Dallaṇācāryya—Nibandha Saṁgraha—12th century A.D.
8. Ubhalta (Kashmir).

Editions—Suśruta Saṁhitā has been edited by Madhusūdan Gupta, Calcutta, 1885, by J. Vidyāsāgar, 3rd Edition, Calcutta, 1889, by A. C. Kaviratna, Calcutta, 1888-95, by Prabhurām Jibananāth, Bombay, 1901; and by Virasvāmī, Madras.

This book has been translated into English in part only by U. C. Datta 1883, A. Chattopādhyāy 1891, Hoernle 1897, Calcutta, in the Bibliotheca Indica. It has been translated into Latin by Hessler and into German by Vullurs.

The book was translated into Arabic before the end of the eighth century A D. It is called "Kitab-Shawshoon-al-Hindi"

१ श्रीपद्मेनवमीरधं सौश्रुतं पीक्षलावतम् ।
शेषाणां शल्यतन्त्राणां मुलाग्यैतानि निर्दिशेत् ॥

Suśruta Saṁhitā, I. 14.

ॐ नमः श्रीसहजपालदेवभूषणविरच्यः श्रीहृदयः समभूत् । तेन
श्रीजैज्जटं टीकाकारं श्रीगदासभास्कारौ च पञ्चिकाकारौ श्रीभाष्यविरच्य-
देवादीन् विप्रते

and also mentioned as "Kitab-i-Susrud" or Book Suśruta by Ibn Abīlīsaibīal. Rhazes often quotes Sarad as an authority in Surgery.¹

VĀGBHATA I.

The next author of celebrity and whose work is still extant is Vāgbhata I or Vāgbhata the elder, the author of *Aṣṭāṅga Saṁgraha* (i.e., Compilation of the Octopartite Science). In later times, a namesake of his, wrote another work called *Aṣṭāṅga Hṛdaya Saṁhitā* (or the best Compendium i.e., the Heart of the Octopartite Science). In the *Uttara Sthāna*, Vāgbhata the younger distinctly states that his Compendium is based on the Compilation of Vāgbhata the elder.²

As regards the age of Vāgbhata the elder, there is the same uncertainty as with his predecessors. We are however sure that he is posterior to Caraka and Suśruta for he refers to these writers by name.³

The chronological relation of the three early authors is described in a popular couplet that Ātreya, Suśruta and Vāgbhata were the three great medical authors for the three Yugas—

¹ "His next description is from an author named Sarad, whom he frequently quotes in other parts of his works".

Adam's Commentary on Paulus Æginetta, VI lxi.

² अष्टाङ्गवैद्यकमहीदधिमन्त्रेण योऽष्टाङ्गसंग्रहमहावृत्तारविशतः ।

तथादनन्त्यफलमन्त्रसमुद्यमाणां प्रीत्यर्थमेतदुदितं प्रथगेव तत्त्वम् ॥

Aṣṭāṅga Hṛdaya Saṁhitā, *Uttara Sthāna*, Ch XL, v. 82

³ By name, e.g. in *Saṁgraha*, Bombay ed., Vol. I, P. 246; Vol. II, P. 421. Again quoted from Caraka, *Ibid.*, Vol. I, pp. 20, 93; Vol. II, pp. 212, 213, *et passim* - from Suśruta I, *ibid.*, Vol. I pp. 109 121 177 247 Vol. II p. 303,

the Tretā, Dvāpara and Kali, respectively.¹ They are known as the Vṛddha Trayī or the Old Triad. This medical tradition goes much against the conclusion of Dr. Hoernle that Vāgbhaṭa I must have flourished early in the seventh century A.D. One of the reasons put forward by him is the fact, that "the Buddhist pilgrim I'Tsing, who resided ten years in the Nalandā University (in Bihar) from about 675-686 A.D., states in *Records of Buddhist practices* that the eight arts (*i.e.*, the branches of medicine) formerly existed in eight books but lately a man epitomised them and made them on one bundle (or book)."² Professor Jolly understands by it the Suśruta Saṁhitā while Dr. Hoernle points out with more reasons that it refers to Vāgbhaṭa I's work, the Aṣṭāṅga Saṁgraha (*i.e.*, the Compilation of the Octopartite Science) and rules out Suśruta by the word "lately."³ But the description that I'Tsing gives of the contents of the book does not warrant any reference to either. Moreover, he has not given any reason why Vāgbhaṭa II's book Aṣṭāṅga Hr̥daya Saṁhitā (the best Compendium of the Octopartite Science) might not be alluded to by I'Tsing. Dr. Hoernle, however, rules him out by date for "he can not be placed earlier than the eighth century"—an assertion unsupported by any evidence whatsoever. All that he has proved is that "Accordingly it is probable that all these three medical writers (Mādhava, Dṛḍhabala and Vāgbhaṭa II) come in the period from the 7th to the

¹ See foot-note 3, P. 6.

² I'Tsing: *Records of the Buddhist Religion*. Transl. by Professor Takakusu, P. 128.

³ J. R. A. S., 1907, P. 413.

9th century A.D.¹ at no very great interval from one another," and this proof is based on the age of Vāgbhata I as suggested by I'Tsing's remarks. Thus he has taken for granted what he is required to prove. He has shown that Susruta is anterior to Vāgbhata I, and Vāgbhata II is posterior to him. But in trying to prove that Vāgbhata I lived in the seventh century he cannot assume that Vāgbhata II lived in the eighth. Another evidence adduced in support of his conclusion is the fact that the non-medical version of the list of bones of the human body as contained in the Law-book of Yājñavalkya presupposes earlier uncorrupted forms of lists of bones both in Caraka and Suśruta, and "the corrupt recension, traditionally handed down, must have come into existence at a later date," that is to say, between the date of Yājñavalkya (350 A.D.) and Vāgbhata I, the latter of whom is proved to have copied from the corrupt recensions of Caraka and Suśruta. Thus the older recensions still existed in the fourth century A.D. and if we add to it the interval of time necessary for the texts to have fallen into a state of corruption, we get the early seventh century A.D. for Vāgbhata I. But we must remember that there is nothing to prevent against the supposition that Vāgbhata I lived before Yājñavalkya. There might have been two recensions of the texts available during Yājñavalkya's time, one corrupted and it might or might not have been the work of Vāgbhata I and another true version which was availed of by the sage Yājñavalkya. And similar events have happened, as has been pointed out by Dr. Hoernle himself, in our own generation Gaṅgādhara's recension of Caraka is a corrupted form of the text,

while the recension given in Jībānanda's edition is the traditional text of Caraka. No critic would I think jump into the conclusion that Gaṅgādhar lived three or four centuries after Jībānanda. Again if it be true, as he contends, that Suśruta was redacted by Vāgbhaṭa I, we could easily imagine that Yājñavalkya copied his list bones from the original Suśruta and not from the redaction of Vāgbhaṭa I. So we see that the age assigned to Vāgbhaṭa I, or the seventh century A.D. can not be accepted as proved. Dr. Hoernle says. "It should, however, be understood that these conclusions regarding the date and authorship of Vāgbhaṭa I, are not put forward as established fact."

* Let us recapitulate the objections that can be urged against the conclusion that Vāgbhaṭa I lived in the seventh century A.D.

1. Vāgbhaṭa I is believed by the Indian medical men to have flourished long before the Christian era. By some, he is connected with the court of Yudhiṣṭhira, but his name is nowhere mentioned in the Mahābhārata. Ātreya, Suśruta and Vāgbhaṭa are described as the Old Triad or Vrddhya Trayī and they were the authorities for the Tretā, Dvāpara and Kali Yugas, respectively. It is curious to observe that Dr. Hoernle in arguing against the conclusion of Prof. Jolly that Suśruta is meant by I'Tsing, takes advantage of this Indian medical tradition that Suśruta flourished during pre-historic times, but does not mention the same tradition with regard to Vāgbhaṭa I, which goes against his own conclusion. On the other hand the same objection does not apply against Vāgbhaṭa II.

2 The name of Vāgbhaṭa. Is book Compendium of the

Octopartrite Science, no doubt, agrees very well with the description of I'Tsing that "lately a man collected them into one bundle." But Vāgbhaṭa II's book "The best Compendium of the Octopartrite Science" is equally suggestive, though Dr. Hoernle says. "it cannot prevail by the side of the more suggestive name of the rival work of Vāgbhaṭa the elder."

3. Again in arguing against Prof Jolly, Dr. Hoernle has attached much importance to the word "lately" by which Suśruta is ruled out by date. Admitting the validity of such reasoning, it does not follow that by the word "lately" I'Tsing meant any contemporary author or any one who preceded him by a short period only. To comprehend the meaning of the sentence we must understand the word "lately" in connection with the word "formerly" used before ¹ Now the sentence "The science of medicine formerly existed in eight books" no doubt refers to the division of Āyurveda into eight parts by Brahmā and to the treatises on the different branches of Medicine by Agniveśa, Suśruta and others. These treatises are believed to be of remote antiquity, and so any later compilation may be spoken of as recent in comparison with the old treatises of unknown ages. Thus the word "lately" may refer either to Vāgbhaṭa I or Vāgbhaṭa II, but the latter author's claim to the honour becomes reasonable considering his decided posteriority to the former and so coming within the limit of the time suggested by the word "lately."

4. Again I'Tsing refers to a book which was recognised as the standard throughout India. This may refer either to

Vāgbhaṭa I or II. But if Vāgbhaṭa I's book occupied such a position at the time of I'Tsing, it becomes difficult to imagine why Vāgbhaṭa II should write another work principally based on the work of Vāgbhaṭa I after a lapse of a century or so. Moreover, we find at the present time, that Vāgbhaṭa II's book, *Aṣṭāṅga Hṛdaya Saṁhitā*, has a wider popularity than the book *Aṣṭāṅga Saṁgraha* of Vāgbhaṭa I. The former has been printed many times and is widely read by the students,—so much so Vāgbhaṭa is generally known as the author of *Aṣṭāṅga Hṛdaya Saṁhitā*.

5. Moreover, the Arabian physician Rhazes, who is said to have lived in the ninth century (882 A.D.) in treating of the property of ginger, the common plantain or musa and other drugs, quotes from an Indian writer, whom he calls Sindaxar or Sindicara.¹ Royle says: "But in the article *De Allio* another Indian author is quoted, whom I have not been able yet to trace out—*Ait Sindifar* (in another place written "*Dixit sindichar*") *indianus* valet contra Ventositatem." This Sindicara is identified with Vāgbhaṭa II of Sindh who was in his time known as a second Caraka or Cara, the syllable "ka" making no difference, as in words like "bāla" and "bālaka," both meaning a child.² We know that the Vāgbhaṭa's *Aṣṭāṅga Hṛdaya Saṁhitā* was one of the medical works translated by the order of Caliphs in the eighth century.³

6. The translations of the Caraka, the Suśruta and the Vāgbhaṭa occur in the Thibetan Tanjur.⁴ "George Huth,⁵

¹ Antiquity of Hindu Medicine, Page 35.

² History of Aryan Medical Science, P. 196.

³ Zeit. dent. morg. Ges. 34, p. 465.

⁴ Jour. o Soc. 1835)

⁵ Zeit. dent. morg. Ges. T (LXIX. pp. 279—284

who has recently critically examined the contents of the Tanjur, concludes that the most recent date at which it can be placed is the 8th century A.D.”¹

So I cannot avoid the conclusion that of the three authors, Suśruta, Vāgbhāṭa I and II, to which I’Tsing’s remarks may refer, the last has probably the best claims to that reference ; and the date assigned to Vāgbhāṭa I may well suit Vāgbhāṭa II i.e., “as late as the early 7th century A.D.,”² and possibly still earlier.³ Again it is impossible for us to say whether I’Tsing’s remarks may not appropriately refer to other authors whose works are lost to us.

Mention should also be made of the fact pointed out by Dr. Cordier that Vāgbhāṭa is mentioned in *Rājatarāṅgiṇī* and his date is fixed there as 1196-1218 A.D.⁴

But the name of Vāgbhāṭa does not occur in Stein’s edition of *Rāj*, which is no doubt the most reliable, and so we can easily dismiss this view as untenable.

Editions—Vāgbhāṭa I’s book *Aṣṭāṅga Saṁgraha* has been printed in Bombay.

Commentary—Arunadatta—about 1220 A.D.

¹ P. C. Rāy’s *History of Hindu Chemistry*, Intro., P. XXIX.

² Hoernle’s *Osteology*, Intro., p 10.

³ Dr. Kunte places him “at least as early as the second century before Christ,” Vide his Intro to Vāgbhāṭa’s *Aṣṭāṅga Hṛdaya Saṁhitā*.

⁴ सिंहमुद्रकः परमवैद्यो वाग्भट्टाचार्यः काशीरत्नगरपति जयसिंहस्य प्रजापालन समये (ख. बादश जताब्दाम्, शक १११८—४०) वर्त्तमाना आसीत् ।

Quoted in Cordier’s *Vāgbhāṭa et L’Aṣṭāṅgahṛdaya Saṁhitā*, 1896.

See Intro. to the *Vaidyākāśaklasādhu* by *Kaṁaraja Un*
1894.

VĀGBHATA II.

The next great authority in Hindu medicine is Vāgbhata II, son of Simha Gupta, an inhabitant of Sindh.¹ His work, *Aṣṭāṅga Hṛdaya Samhitā*, the author himself states, is based on the summary of Vāgbhata the elder.² In the first chapter of *Sūtra Sthāna*, he acknowledges the help he received from the works of Agniveśa, Hārīta, Bhela, and others.³ The fact that Caraka is not referred to here as one of the sources of Vāgbhata II has been taken advantage of by some to prove the posteriority of Caraka.⁴ They conclude that Agniveśa and Suśruta wrote their works long before him, and the Agniveśa Tantra was not called by the name of, and in fact was not as yet edited by, Caraka, at the

- 1 भिषग्वरी वामट इत्यमुने
पितामही नामधरीऽपि यस्य
सुतीऽभवत्तस्य च सिद्ध्युतः
तस्याप्यहम् सिन्धुसु जातजन्मा ॥

Aṣṭāṅga.

- 2 *Aṣṭāṅga Hṛdaya Samhitā*, Uttara Sthāna, Ch. XL, v. 82.

See foot note 2, p. 18.

- 3 ब्रह्मा सृष्ट्वाऽऽयुषी वेद प्रजापतिमजिह्वत् ।
सीऽभिदनौ तौ सहस्राक्षं सीऽन्निपुदादिकान्दुनीम् ॥४॥
तेऽग्निवेशादिकांस्तु पृथक् तन्वाणि तेनिर ।
तेभ्योऽतिविप्रकीर्णैः प्रायः सारतरीचयः ।
क्रियतेऽष्टाङ्गद्वयं नातिसंक्षिप्तविसरम् ॥५॥

Aṣṭāṅga Hṛdaya, *Sūtra Sthāna*, Ch. I.

* "It would appear also that at the time Vāgbhata lived, Agniveśa's work was not called by the name of Caraka, and Suśruta had also been written. Hence it follows that Caraka's edition of Agniveśa, that is the work now called Caraka, was probably edited after Suśruta had been written."

time Vāgbhaṭa II flourished. The argument is however not conclusive; it only shows that the Agniveśa Tantra was available to Vāgbhaṭa II in its original form. No definite results can be expected from this *argumentum ex silentio*. Again it may easily be imagined, and I think it is the right view of the question, that Caraka lived and edited Agniveśa's work long before Vāgbhaṭa, the reason of Caraka being not mentioned in Vāgbhaṭa's book, is the fact that Caraka did not usurp the authorship of Agniveśa Tantra but clearly states at the end of each chapter the real nature of his share in the authorship of his book in the following words:—"Here ends the chapter of Agniveśa Tantra as corrected and edited by Caraka." Many modern text books of medicine have been edited and improved, though the books are still called after the original authors. Moreover to make Caraka flourish after Vāgbhaṭa II would bring him to quite modern times.

We are however arguing on false premises. Though Caraka is not mentioned in the Sūtra Sthāna of Aṣṭāṅga Hṛdaya, his name occurs in the Uttara Sthāna.¹ So there can be no doubt that Caraka's edition of Agniveśa was current in India long before Vāgbhaṭa II wrote his Aṣṭāṅga Hṛdaya Saṁhitā.

¹ यदि चरकमधीते तदुभयं सुश्रुतादि

प्रणिहितगदाना नाममात्रेऽपि वाच्यः ।

अथ चरकविहीनः प्रक्रियायामस्त्रिः

किमिह खलु करीतु व्यधितानां वराकः ॥४२॥

* * * *

अधिप्रणीते प्रीतिधेनुज्ञा चरकसुश्रुती ।

भेदायाः किं न पठ्यान्ते तस्माद्वाङ्मं सुभाषितम् ॥४३॥

Aṣṭāṅga Hṛdaya Saṁhitā, (Ed. V. Jayratna Sen),

Uttara Sthāna Ch. XII

Editions.—There are various editions of the book but the following are reliable :—

1. By Dr. Anna Moreśvara Kunte, M.D., 2 vols., Bombay, 1880 ; 2nd Ed., 1891.
2. By Jibānanda Vidyāsāgara, Calcutta, 1882.
3. By Vijayratna Sen Kaviranjana, Calcutta, 1885-90.
4. By Ganēś Sastri Tartevidya, Bombay, 1888.
5. In Sanskrit and Bengali, with the commentary of Arūṇadatta by Vijayratna Sen Gupta, Calcutta, 1888.
6. In Sanskrit and Guzrathi by Behicharlal Nathuram, Ahmedabad, 1889.
7. In Sanskrit and Bengali by Kālīśa Cundra Sen Gupta, Calcutta, 1890-1892.
8. In Sanskrit and Hindi by Pandit Robi Dutta, Bombay, 1890.
9. In Sanskrit and Marathi by Ganēś Kṛṣṇa Garde, Poona, 1891.
10. In Sanskrit and Bengali by *Kavirāja* Binod Lāl Sen, Calcutta, 1891-1892.

*Commentaries.*¹—

1. Sarvāṅga Sundarī² by Arūṇadatta, son of Mṛgāṅka-datta, 1220 A.D.

¹ See Cordier's *Vāgbhāṭa et L'Asṭāṅgahrdaya Saṁhitā*, P. 6.

² इति श्रीमृगाङ्गदत्तपुत्र श्रीमदङ्गदत्तविरचितायां

* * * *

2. Āyurvedadarśayana (Dinacharyā Prakarana) by Hemadri or Kamadeva, Raja of Devagiri. It is available in parts only.
3. Aṣṭāṅgahrdayarddyota by Aśadhara Sallaxana.
4. Padārthacandrikā by Candracandana.
5. Saṅketamañjari by Dāmodara.
6. Aṣṭāṅga Hrdayatikā by Rāmanāth Vaidya.
7. Vālaprobodhikā (Anonymous).
8. Hrdayabodhikā „
9. Pāṭhya.
10. Vāgbhaṭṭartha Kaumudī by Hari Kṛṣṇa Sen Mullick.
11. Pradīpa by Jaśodānandan Sarkār, 1298 B.S.

VĀGBHATA III.

The author of Rasaratna Samuccaya in the Colophons at the end of each chapter identifies himself with Vāgbhaṭa II. "Here ends Book first (or so) of R.R.S composed by Vāgbhaṭa, son of Simha Gupta, prince of physician." The salutation at the beginning of his book is strictly Buddhistic. The probable date of the book is "placed between the thirteenth and fourteenth centuries A.D."¹ "The chemical knowledge, as revealed in Vāgbhaṭa is almost on a par with that in the Sūsruta," whereas the R. R. S. indicates an advanced state of that science. He quotes Rasārṇava as a source of his information; he does not mention opium as a medicine, and the Firaṅga roga and its treatment find no place in his book.

¹ P. C. Ray's History of Hindu Chemistry Intro p. H.

MĀDHAVAKARA

He is the author of the famous work on Pathology or Nidāna. His book was translated into Arabic by the order of Harun-Al-Rasid and so the most recent date that can be assigned to him is the seventh century A.D.¹ Thakore Saheb of Gondal identifies him with Mādhavācāryya, the celebrated author of Sarvadarśana Saṁgraha, the brother of Sāyana, the commentator of the Vedas.² I do not find any authority for such an assertion and here is an example of fallacious reasoning based simply on the identity of names. Mādhavācāryya and Sāyana lived in the twelfth century A.D. Mention should also be made of the view expressed by Dr. Hoernle as certain that Mādhavakara, the author of Nidāna and Vṛnda Mādhava, the author of Siddhayoga are one and the same person. He holds that Vṛnda is the real name, but he was known to the commentators as Mādhava, for his melodious diction. There is no proof given of this opinion, and we have reasons for not accepting it. However as he does not treat of surgical instruments, his work is not important to us.

CAKRAPĀṆIDATTA.

Cakrapāṇidatta or more commonly Cakradatta in a Colophon³ has given an account of himself in his book called

¹ Jolly's Indian Medicine, ff. 5, 6, pp 7-9

² History of Aryan Medical Science, Ch II, p. 35.

³ गौडाधिनाथ रसवत्साधिकारिपात्र—

नारायणस्य तनयः सुनयोऽन्तरङ्गात् ।

भानोरत्न प्रथितलीधवल्लोकलीनः

श्री—कृपदाधिकारी ।

Cikitsā Sāra Saṁgraha: "The author of this work is Śrī Cakrapāṇi who belongs to the family of Lodhravalī; and who is the youngest brother of Vanu and the son of Nārāyaṇa, the superintendent of the kitchen of Nayapāla,¹ the king of Gour" This book is arranged on the plan of Vṛnda in his Siddhayoga² which again follows closely as a companion volume to Mādhava's Nidāna.³ The age of Cakradatta is about 1060 A.D.; and Vṛnda must have flourished between Mādhava and Cakrapāṇi for he quotes the former while he is himself quoted by the latter. So the probable age of Vṛnda is the ninth century A.D. Besides being a celebrated author, Cakradatta wrote excellent commentaries of Caraka and Suśruta. His extant works are—

1. Cikitsā Sāra Saṁgraha or Cakradatta. A treatise on
Medicine

¹ For the date of Nayapāla, vide Cunningham's Archaeo. Survey of India. III P. 119; also J. A. S. LX Pt I. P. 46. Life of Atisa by S. C. Dās.

² यः सिद्धयोगलिखिताधिकसिद्धयोगा—

नत्रैव निक्षिपति केवलमुद्धरीह ।

भङ्गव्यविषयवेदविदा जनेन

दत्तः पतेत् सपदि मूर्ध्नि तस्य शापः ॥

Sloka at the end of the Cakradatta.

य इत्यादी।—सिद्धयोग इति उद्धृतसंयुक्तस्य संज्ञा, तद्विहितयोगमपेक्षाधिका ये च सिद्धयोगा अत्र संयुक्ते चक्षाज्ञानधिकयोगान् तत्रैव सिद्धयोगे निक्षिपति, तथा यो वा तावधिकसिद्धयोगानित, संयुक्तादुद्धरीत् दूरीकुर्यात्, तस्य मूर्ध्नि ईदृशेन पुंसा दत्तः शापः पतेत् । कौटशेन पुंसा ? भङ्गव्यविषयवेदविद्या । कारिका उद्धरीका चन्द्रटीकेति भङ्गव्यं, विषयवेदः चरम्यजुःसान्द्रपः, तद्विदा ॥

Śībadāsa Sen's Commentary.

³ उद्धरेव * * * * * सल्लिख्यते वदविनिश्चयमेव ॥

2. *Cakradatta* or *Materia Medica*. It treats on drugs applicable to a number of diseases.

3. *Muktābali*. This treatise on the nature and properties of medicinal drugs is ascribed to *Cakrapāṇi*.

4. *Vānumatī*—Commentary on *Suśruta Samhitā*.

5. *Cakratattwadīpikā*—Commentary on *Caraka Samhitā*.

Editions.—

1. *Cakradatta* or *Cikitsā Sāra Saṅgraha* edited by *Kavirāja Pyāri Mohan Sen Gupta*, Calcutta, 1295 B.S.
2. *Cakradatta* with Bengali translation by *Candrakumār Dās Kavibhūṣan*.
3. *Cakradatta* with Bengali translation and with commentary of *Śiva Dās Sen*, by *Jaśodā Nandan Saikār*, 1302 B.S.

SĀRANGADHARA.

He wrote *Sārangadhara Saṅgraha*. It is compiled from the works of *Caraka*, *Suśruta*, *Vāgbhaṭa* and others¹. It is very popular in Western India. It treats on nosology and practice of Medicine. He was the son of *Dāmodara* and flourished in the fifteenth century A.D.

Edition.—By *Kavirāja Pyāri Mohan Sen Gupta*, Calcutta, 1296 B.S.

¹ प्रसिद्धयोगी मुनिभिः प्रयुक्ता
चिकित्सकै र्वै बहुशीलभूताः ।
विधीयते शास्त्रधरेण तेषां
संस्मरणं ।

Commentary.—Sāraṅgadharatikā: It is a commentary on the above work by Adhamulla.

BHĀVA MĪSRA.

About 350 years ago, a compilation was made by Bhāva Mīśra, son of Lataka Mīśra, an inhabitant of Benares, from the most celebrated medical works and was called Bhāva Prakāśa.¹ He lived about 1550 A.D and was considered a "Jewel of Physicians and Master of Śāstras." He mentions China root called Tob Chini² in the Vernacular as a remedy of Firaṅga roga or Syphilis³ which he describes for the first time in India. He was the first to make mention of certain drugs of foreign countries as Badhkshani Naspasi,

- ¹ अयुर्वेदाभिसध्यादतिमतिमुनयो योगब्रानि यन्ना-
ब्रह्मा स्वे स्वे निवर्त्येदधुरखिलजन व्यधिविञ्चसनाय ।
तत्तद् यन्त्रादग्रहीतैः सुवचनमणिभिर्भावमिश्रशिक्षिता
शास्त्रे जाड्यान्वकारं प्रशमयितुमिमं सम्बधत्ते प्रकाशम् ॥

Bhāva Prakāśa, I. i.

इति श्रीमिश्र लटकतनय श्रीमन्मिश्रभावविरचिते
भावप्रकाशे षष्ठ प्रकरणे सम्पूर्णं ॥

Colophon at the end of Section I.

- ² हीपल्लवचा किञ्चित्कीणा वज्रिहीनिष्ठत् ।
विवन्धाश्चान्गुलव्री शङ्खान्मूत्रविशीघिनी ॥
वातव्याधीनपद्मारमुन्मार्द तनुवेदनाम् ।
अपीडति विशेषेण फिरङ्गामयनाशिली ॥

Bhāva Prakāśa, I. i.

- ³ फिरङ्गसंज्ञके देशे बाहुल्येनैव यद्भवति ।
तस्मात् फिरङ्ग इत्युक्ती व्याधिव्याधिविशारदैः ॥

Bhāva Prakāśa, II v

Khorasani and Parasika Vacha (Acorus Calamus), Sulemani Kharjura (date fruit of Suleman),¹ and opium.

Editions.—

1. By Jibānanda Vidyāsāgara, Calcutta, 1875.
2. By Rasik Lāl Gupta.
3. By Kaliśa Candra Vidyāratna.

Besides these books, the number of Sanskrit medical works is simply legion, many of them are daubed with fancy names and are excellent treatises on the different branches of medical science. But they are quite foreign to our purpose. I intend to publish in a separate volume short notices of the medical authors and their works, and so we need not dwell on them here.

- ¹ पारसीक यवानी तु यवानी सदृशीं गुणैः ।
विशेषात् पाचनी रुचा ग्रहिणी मादिनी गुरुः ॥

Bhava Prakāśa, I.

पारसीकवचा युक्ता प्रोक्ता हैमवतीति सा ।
हैमवत्युदिता तद्वद्वान् हन्ति विशेषतः ॥

Ibid.

उक्तं खसफलदीरमाफूकसहिफणकम् ।

Ibid.

चीनाक सञ्जः कर्पूरः कफचयकरः स्मृतः ।

Ibid.

खर्जुरी गीमनाकाग परबीपादिहागता ॥

Ibid.

HOSPITALS AND DISPENSARIES.

¹ इह निवात प्रवर्तकदेश सुखप्रविचारमनुपत्यक धूमात्परजसामनसिगमनौद्यमनिष्ठानाञ्च
शब्द-स्पर्श-रस-रूप-गन्धानां सीपानीदूस्मलमुपलवर्जः स्थानस्थानभूमिमहानसीपित वास्तुविद्या-
कुशलः प्रशस्तं गृहमेव तावत् पूर्वमुपकल्पयेत् ।

ततः शैलशैवानुरागदाद्यप्रादक्षिण्योपपन्नानुपचारकुशलान् सर्व्वकर्मसु पर्यवदातान्
सूपीदनपाचकस्नापकसंवाहकोत्थापकसवेशकौषधपेषकाश्च परिवारकान् सर्व्वकर्मस्वप्रति-
कुलान् । तथा गीतवादित्रीत्तापकञ्चोक्तगाथाख्यायिकेतिहास-पुराणकुशलानामिग्राय-ज्ञाननु-
मताश्च देशकालविदं परिप्रदाश्च । तथा लावकापिञ्जलशशहरिषैनकालपुच्छकमृगमातृकी-
रसान् । गाञ्च दीग्धी शैलवतीमनातुरा जीवडन्सा सुप्रतिविहितदृशशरश्चपानौवाम् । जल-
पात्राचमनोदकोऽमणिकपिठरजटकुम्भीकुम्भकुण्डशरावदर्व्वीकपरौपचनमस्थानचेलसूचकार्पासी-
शीदौनि च शयनासनादौनि चौपन्यसम्भारप्रतिग्रहाणि सुप्रयुक्तास्तरणौत्तरप्रच्छदी-
पधानानि स्नापाश्रयानि सवेशनोपवेशनस्नेहस्नेदाम्यङ्गप्रदंहे परिषेकानुलेपनवसनविरचना-
स्वापनानुवासनशिरोविरचनमूषोच्चारकर्मसामुयचारमुखानिसुप्रक्षालितोपधानाश्च स्नानाखर-
मव्यसा दृशद शस्त्राणि चौपकरणाथानि ।

धूमनेत्रं वस्तिनेत्रञ्चोत्तरवर्तिकम् । कुण्डहस्तश्च तुलाश्च मानभाण्डश्च घृततैलवसामज्जन्तोद्ग्राहिणितलवक्त्रेऽनीदक-मधुसुरासौवीरकतृणीदकमेर्यमेदकदक्षिमण्डोदश्विङ्गान्नाग्नमूचाणि च । तथा शालिषष्टिकमुद्रमाषयवतिष्ठकुलव्यघदरमृद्धीकापरूषकाभयामलकविभीतकानि नाना विधानि च । द्रव्याणि तानि यमाश्च संयच्छनीवदीप-समास्थातानि चौषधानि यच्चाभ्यदधि किं

He advises us as follows :—The engineer is to erect a strong and spacious building, well-ventilated at one part, the other part being free from draughts. The scenery should be pleasing and one should feel happy to walk in it. It must not be behind any high building, nor exposed to the glare of the sun. It should be inaccessible to smoke and dust. There must not be anything injurious to our senses as regards sound, touch, taste, form and smell. There should be stairs, large wooden mortars and pestles; and there must be additional bare ground for the construction of a privy, bath-room and kitchen. The staff should consist of servants and companions. The servants should be good, virtuous, pure, fond, clever, generous, well trained in nursing, skillful in works, able to cook rice and curries well, competent to administer a bath, expert masseur¹, trained in raising and moving a patient, dexterous in making or cleaning beds, practiced in the art of compounding medicines and willing workers not likely to show displeasure to any order. The companions should be good singers and musicians, fluent speakers, well-versed in distichs, ballads, tales, history and mythology, well-acquainted with the design of a patient's nods or signals, agreeable and should have knowledge of the season and the locality. The various kinds of animals

¹ From the accounts of Megasthenes, we learn that four attendants used to massage him (Candragupta) with ebony rollers during the time that he was engaged in disposing of cases. Such an attendant (*saṁvāhaka*) is a minor character in the Toy Cart or little Clay Cart, drama, transl. by Ryder, in Harvard Oriental Series, Vol. IX, 1905—Smith's *Early History of India*, 2nd Ed., Page 122 Footnote. We also find in the *Kāmandikya Nitisāra* that the king is cautioned against shampooers who have the opportunity of poisoning him.

should always be kept in stock such as Lāva (*Perdix Chinensis*), Kapiñjala (partridge), hares, sheep and the different kinds of deers, Eṇa (the black antelope) blacktailed deer, and Mrgamātrka. There should be a dairy attached to the building. The cow should be good natured and healthy, and should yield profuse milk. The calves must be living. There should be stocked for them potable water and hay in a clean fold. In that building must be kept the following necessary articles:—

Water vessels, washing basins, tubs, jars, dishes, ghata, (small jars) kumbhī, kumbha (larger and smaller vessels), kundu (jug or pitcher), soraba (earthen basins), spoons or ladles, cooking utensils, churning rods, cloth, thread, cotton, wool, bedding and āsana (seats). Near them should be placed drinking vessels of gold and spittoons. The bedding should consist of a broad carpet, bed-sheet, pillows, and a bedstead. There should be collected good furnitures for beds and seats, and also utensils and appliances for application of oleaginous medicines, heat, oil, ointment, bath and perfumeries, and for the acts of emesis, purgation, draining of the brain, injection into the rectum, defaecation and urination (i.e. Vastī-yantra, urinal, bed-pan &c.). The blunt and sharp instruments and their accessories, well-washed mullers and whetstones of different degrees of smoothness—polished, plain or rough—should be near at hand, the tubular instruments for fumigation, inhalation and injection into the rectum, urethra and vagina, should be available there; and the following articles are also to be stocked—brushes and brooms, weighing scales and weights, ghee (melted butter), oil, fat, marrow, honey, molasses, salt, wood, water-spirituous liquor formed by steeping husked grains of barley in water or by boiling together the husks of fried māśkalāya

(pulse of *Phaseolus Rox*), barley and water, spirituous liquor from the blossoms of *Lythrum Fruticose* with sugar, spirit distilled from the different sorts of grains, curdled milk, rice, gruel, whey, sour liquid produced from the acetous fermentation of powdered paddy, and the various kinds of urines of animals. Different kinds of rice such as *Śālī* (or that reaped in cold season) and *Sasṭhika* (or that grown in hot weather in low lands and reaped within sixty days of its sowing), *Mudga* (*Phaseolus mungo*), *Māṣa* (*Phaseolus Rox*), *Yava* (*Hordeum Vulgare*), sesame (*Seasamum Indicum*), *Kullatha* (*Dolichos Biflorus*), plums (*Zizyphus Jujube*), raisins (*Vitis Vinifera*), *Paruṣa* (*Grewia Asiatica*), *Abhayā* (*Chebulic Myrobolan*), *Āmlakī* (*Phyllanthus Emblica*), *Vibhitaka* (*Terminalia Bellerica*) and other classes of medicaments, as oils, diaphoretics, sternutatories, cathartics, emetics, purgatives, astringents, stomachics, digestives, calmatives, carminatives and various other forms of medicines, are required for treatment. Besides these, there must be stored the antidotes to poisons caused by overdoses of medicines and other appliances likely to add to the patient's comfort

To this may be compared the description of the Greek iatrum, which is mentioned in the Hippocratic treatise, *De Medicis*. He directs that "it should be so constructed that neither the wind nor sun might prove offensive to the patient, and goes on to enumerate the various articles which it should contain, such as scalpels, lancets, cupping-instruments, trepans, raspatories, with bandages and medicines." ¹

Suśruta gives us a list of appliances¹ required in surgical operations:—

1. Blunt Instruments. 2. Sharp Instruments. 3. Potential Caution. 4. Actual Caution. 5. Śalākā or rods. 6. Horns. 7. Leeches. 8. Hollow bottle gourd. 9. Jāmbav-oustha [a bougie of blackstone, the extremity of which is shaped like the fruit of the Jambul tree (*Urginea Jāmbolana*)] 10. Cotton. 11. Pieces of cloth. 12. Thread. 13. Leaves. 14. Materials of bandaging. 15. Honey. 16. Ghee, or clarified butter. 17. Suet. 18. Milk. 19. Oils. 20. Tarpan—flour of any perched grain or condensed milk etc. mixed with water to mitigate thirst. 21. Decoctions. 22. Liniments. 23. Plasters. 24. Fan. 25. Cold and hot water. 26. Iron pans, kalasī and other earthen vessels; beddings and seats. 27. Obedient, steady and strong servants.

The Lying-in-room—Caraka says: ‘Before the ninth month of pregnancy, the lying-in-room should be constructed. The land should be cleaned of bones, gravels and potsherds. The ground selected should be of auspicious colour, taste and smell. The gate of the house should face towards the east or the north.² There must be a store of wood such as *Vilva* (*Ægle*

¹ अतोऽनामतं कर्त्तव्यं चिकीर्षता ब्रह्मेन पूर्वमेवोपकल्पयितव्यानि तद्वयथा यन्मयस्त्वाराग्नि-
ज्वालाकाशश्च जलोक्तावूनाम्बोदपिचुर्ग्रीतस्त्रपत्रपट्टमधूहृतवसापयसौलतर्पनकाषायलेपन कल्क-
व्यञ्जनग्रीतीशीदक कटाहदीनि पारकर्मणश्च स्निग्धाः स्थिरा बलवन्तः ।

Suśruta Saṁhitā. I. v

² “The best sort of ground should abound with milky trees, full of fruits and flowers; its boundary should be of a quadrangular form, level and smooth, with a sloping declivity towards the east producing a hard sound, with a
og from left to right of an ble doour fertile of an an form

Marmelos), Tinduka (*Diospyros Embryopteris*), Inguda (*Balanites* Rox.) Bhallākaka (*Semecarpus Anacardium*), Vāruṇa (*Ocimum Basilicum*), Khadira (*Acacia Catechu*) or wood of other kinds said to be auspicious by a Brāhman versed in the Atharvaveda; and there must be a sufficient provision for clothes, liniments, and covers. For the pregnant woman, be careful to have a fire-place, water, pestles and mortars, a privy, a bathing place, and ovens. These should be constructed according to the science of engineering and should be pleasant with regard to the season. There should be collected clarified butter, oil, honey, different kinds of salts as rock salt, sonchal salt, and black salt, Vīḍaṅgas (*Embelic Ribes*), treacle, Kuṣṭha (*Saussurea Lappa*), Kūlma (*Pinus Deodara*), Nāgara (dried root of *Zinziber Officinale*), Pippalī (*Piper Longum*), its root, Hastipippalī (*Scindapus Officinalis*), Mandukpāni (*Hydrocotyle Asiatica*), Elā (*Elettarium Cardamomum*), Lāngolī (*Gloriosa Superba*), Vāca (*Acorus Calamus*), Cavya (*Piper Cava*), Chitraka (*Plumbago Zeylanicum*), Chiravilva (*Pongamia Glabra*), Hingu (*Ferrula Assafetida*), Sarsapa (Mustard seeds), Laṣuna (*Allium Sativum*), finely or thickly powdered rice, Kadamba (*Anthocephalous Kadamba*), Ātasi (*Linum Usitatissimum*), Valliṇa (*Cucurbita Pepo*), Bhurya (*Betula Bhojpatra*), Kulatha (*Dolichos Uniflorus*), Maireya (a spirituous liquor from the blossoms of *Lythrum Frutecoscence*) and Āshava (Vinous fermented liquor from sugar or molasses, Rum). Also collect two pieces of

colour containing a great quantity of soil, producing water when dug to the height of a man's arm raised above his head, and situated in a climate of moderate temperature."

stone (muller and stone slabs), two pestles, two mortars, an ass, a bullock, two sharp needles of gold and silver, two skeins of threads, sharp instruments of steel, two wooden bedsteads (*Ægle Marmelos*), and wood (*Tinduka* and *Ingudi*) for easily igniting fire. The female attendants should be mothers of children, and friends and relatives of the patients. They must be fond of her, skillful in work, intelligent, jolly, laborious full of tender love for the children and a favourite of the mother.”¹

The Child's Room —He continues—‘ The engineer is to construct a room, spacious, beautiful, full of light, well-ventilated but free from draughts, strong, and free from beasts of prey, animals with fangs, mice and insects. There should be kept water, mortar and separte places should be assigned for bathing, cooking, urination and defæcation. It should suit the season of the year. The beddings, seats and covers should be comfortable and suitable to the season Auspicious ceremonies should be performed in that room such as *homa*, expiations and presents to gods, for the proper protection of the child, and there should be present pious old men, doctors, and devoted

¹ अक् चैवासा नवमान्मासात् सुतिकानारं कारयेदपहृतास्त्रिशर्कराकपालेदेशं प्रशस्त-
रूपरसम्भावां भूमौ प्राग्हारमुदगहारं वा । तत्र वैश्वानां काष्ठानां तिलकुङ्कुदानां भस्मात-
कानां वाक्पात्राणां खदिरानां वा यानि चानान्यपि ब्राह्मणाः शंसेयुरथर्ववेदविदस्तद्वसनालेप-
नाच्छादनापिधानसम्पदुपेतं तत् । वासु-विद्या-हृदययोगेनाग्निसलिलीलुखलवर्चःस्थानस्नानभूमि-
महानसस्तुमुखश्च । तत्र सर्पिलैलमधुसैन्धवसौवर्चलकाललवणविडङ्गगुडकुष्ठकिलिमनागर-
पिपलीमूलहस्तिपिपलीमण्डूकपर्णालालाङ्गलीवचाचव्यचिचकचिरविल्व-हिङ्गुसर्षप लघुनकन-
कनिकानीपातसीबल्लिवभूष्णाः कुलत्थमैर्यसुरासवाः सन्निहिताः स्याः ॥ यथाश्मानी
हौ द्वे चक्षुर्मुखे द्वे उलूखले खरो वृषभश्च हौ च तीक्ष्णौ सूक्ष्मौ पिप्पलकौ सौवर्णराजतौ द्वे
शस्त्राणि च तीक्ष्णावसानि द्वौ च विस्वमयौ मय्येङ्गौ तैन्दकौङ्कुदानी काष्ठान्यग्निसम्भूतानि
अथैव वङ्गी वङ्गप्रजाताः सौहार्दयुक्ताः सततमनुरक्ताः प्रदक्षिणाचाराः प्रतिपत्तिकुशलाः
प्रकृतिवत्सलास्त्यक्तविषादाः क्लेशसहिष्णवीभिमतता ब्राह्मणसाधर्व्यवेदविदो यच्चान्यदपि तत्र
समर्थं मन्वेव यत्र ब्राह्मणा ब्रूयुः शिवश्च ब्रह्मास्तत्कार्यम् ॥

attendants constantly. The child's bed covers and sheets should be soft, light, pure and scented. These should always be free from sweat, dirt, worms or bugs, urine and faeces. If repeated change of new clothes be impossible, the soiled coverings should be well washed and the beddings well purified with steam and thoroughly dried before they are used again. To purify or sterilise the dress, beddings, coverings and sheets by fumigation use the following medicines with clarified butter—Barley (*Hordeum Vulgare*), mustard seeds, linseeds, assafoetida, Guggula (*Balsanodendron Mukul*), Vāca (*Acorus Calamus*), Coraka (*Andropogon Acicularis*), Vayasthā (*Chebulic Myrobolan*), Golomī (*Panicum Dactylon*), Jaṭilā (*Nardostachys Jatamansi*), Palankaṣā (a variety of Guggula), Aśoka (*Saraca Indica*), Rohiṇī (*Picrorhiza Kurroa*) and sankes' skin ... A variety of toys to please the child should be at hand and these should be coloured, light, musical, beautiful and must not be sharp pointed. They should be of such a size and shape as cannot be put into the child's mouth or do not terrify or kill the child."¹

¹ अतीडनन्तरं कुमारगारविधिमनुव्याख्यास्यामः ॥ वास्तुविद्याकुशलः प्रशस्त रश्ममतमस्त्र निवातं प्रवातैकदेशं दृढमपगतश्रवापदपशुदष्टिमूषिकपतङ्गं सुसंविभक्तसलिनीदूखलमूचवर्चः-स्थानज्ञानभूमिमहानसस्तुसुखं यद्यतुं शयनासनास्तरणसम्पन्नं कुर्यात् । तथा सुविहित-रक्षाविधानवलिसङ्गलहीमप्रायश्चित्तं शुचिद्वन्द्वेद्यानुरक्तजनसम्पूर्णमिति । कुमारगारविधिः ॥ शयनास्तरणप्रावरणानि कुमारस्य रुदुलधुयुचिसुगन्धीनि स्युः । स्वेदमलजक्तुमन्ति मूत्रपूरी-षीपसृष्टानि च वञ्छ्यानि स्युः ॥ असति सम्बन्धिन्येषा तान्येव च सुप्रक्षालितपीधानानि सुधूपितानि सुशुद्धशुष्काण्युपयोगं गच्छेयुः । धूपनानि पुनर्वाससा शयनास्तरणप्रावरणानाञ्च यवसर्षपातसीहिङ्गुगुग्गुलवचाचीरकवयः स्थायीलोमीजटिलापलङ्कषाशोकरोहिणीसर्पनिर्मोकानि धृतसम्प्रयुक्तानि स्युः ॥ मणयश्च धारणीयाः । कुमारस्य खड्गरुगवयवषभानां जीवतामेव दक्षिण्येष्टी विषाख्येष्टीऽद्याणि गृहीतानि स्युः । मन्दाद्यायौषधयो जीवकर्षभकौ च यान्यप्यन्यानि ब्राह्मणा प्रशंसेयुः । क्रीडनकानि खल्वस्य तु विचित्राणि घोषवन्त्यभिरा-माणि अगुरुण्यतीक्षाद्यानि अनाम्यप्रवेशीनि अप्राणहराणि अविदासनानि स्युः ॥

Suśruta directs that there should be a particular room provided for patients who have undergone surgical operations.¹ "Patients suffering from surgical diseases as inflammatory swelling, wounds &c. should, from the very commencement of their illness, confine themselves inside a clean house, situated in a wholesome locality, free from draughts and not exposed to the glare of the sun. For, in such a building, constitutional, mental and accidental diseases are not likely to occur. In that room, the bed for the patients should be soft, spacious, and well-arranged. The patient should lie down, his

¹ ब्रह्मिनः प्रथममेवागारमनिर्च्छेत्तस्वागारं प्रशस्तवास्तादिकं कार्यम् ।

प्रशस्तवास्तुनिर्गृहे शुचावातपवर्जितम् ।

निवाते न च रोगाः स्युः शरीरागन्तुमानसाः ॥

तस्मिन् शयनमसम्भारं स्वास्तीर्यं सर्वांश्च प्राक्शुश्रूष्य सशस्त्रं कुर्वीत ।

सुखचैष्टप्रचारः स्यात् स्वास्तीर्यं शयने ब्रवी ।

प्राच्या दिशि स्थिता द्वास्तत्पूजार्थं नतं शिरः ॥

तस्मिन् सुहृद्भिरनुकूलैः प्रियम्बदैरुपास्यमानो वधेष्टमासीत् ।

सुहृदो विचित्रपत्न्याश्च कथामिर्भक्षवेदनाः ।

आश्रवासयन्तो बहुशब्दतुङ्गलाः प्रियम्बदाः ॥

न च दिवानिद्रावश्यः स्यात् ।

दिवास्तत्राद्रुषे कण्डूर्भावाणां गौरव तथा ।

अथयुर्वेदनारागः स्वयमेव भर्ष भवेत् ॥

उत्थानसंवेशनपरिवर्तनचक्रमणिकैर्भाषणादिषु चात्मचेष्टासुप्रसक्तो ब्रणं सरचेत् ।

स्थानासन चक्रमणं यानयानातिभाषणं ।

ब्रणवान्न निषेवेत शक्तिमानपि मानवः ॥

उत्थानाद्यासन स्थानं शय्यां चातिनिर्षेविता ।

प्राप्नुयान्वास्तादङ्गे रुजस्तस्माद्विवर्जयेत् ॥

सम्भाषाच्च स्त्रीणां सन्दर्शनमसम्भाषणमसंस्पर्शनानिदूरतं परिहरेत् ।

head pointing towards the east, and keep there some weapon for his own protection. On such a bed, the patient can lie comfortably and turn to his sides at pleasure. He should be surrounded by his dear friends, for their sweet words relieve the pain of inflammation. The female friends, however, should be avoided and kept at a distance. He should observe strictly the orders of the surgeon as regards his food, drink and mode of living. He should have his hairs clipped and nails pared short, be pure in his person, put on white clothes and devote himself to religious duties. A light should be kept burning and garlands of flower, weapons &c., should be provided in the room to ward off the demons. He should be cheered and inspired by pleasant stories, and the physicians and the priests should attend the patient morning and evening. Pastils made of *Sinapis Nigra* and *Azadirachta Indica* with clarified butter and salt, should be burnt in the room morning and evening for ten days continually. The inflamed part should be fanned with a *cāmar* or yolk-tail. Sleep during the day, exercise and sexual intercourse must on no account be indulged in."

Suśruta also describes the kitchen of the king thus:—"That is the proper kitchen which is built on good ground, towards an auspicious quarter, full of utensils for cooking, spacious, clean, provided with windows guarded by a network, frequented by friends, cleared well of grass furnished with a canopy, purified by auspicious ceremonies, and managed by men and women of good character. The superintendent of the kitchen should, like the doctor, be noble and virtuous. The cook and servants should be pure, noble, capable, mild good looking engaged in their respective duties. High minded should have the hairs and nails cut short steady

well-bathed, of subdued passion, well-dressed, obedient and have their heads well-covered."

"The doctor in charge of the kitchen should be of noble family, religious, friendly, a clever manager for getting king's food properly prepared, ever careful for his health, non-avaricious, simple, fond, grateful, good-looking, cool-tempered, well-behaved, not proud and envious, laborious, of subdued passion, forgiving, pure, of good character, kind, intelligent, not easily fatigued, always loving, well wisher, capable, bold, clever, skillful, not unreasonably tender, provided with medicines and well proficient in the art of healing" ¹

कुलीन धार्मिक क्षिप्र सुभृतं सततीत्येतं ।
 अल्पं अशुभं भक्तं कृतं प्रियदर्शनं ॥
 क्रोधपादपदमागस्यं मदाशयं विवर्जितं ।
 जितेन्द्रियं क्षमावतं शुचिं शीलदयाम्बितं ॥
 मेधाविनमसंयान्तमनुरक्तं हितैषिणं ।
 पटुं प्रगल्भं निपुणं दक्षं मायाविवर्जितं ॥
 पूर्वोक्तैष गुणैर्युक्तं नित्यं सन्निहितागदं ।
 महानसं प्रयुज्जीत वेद्यं तद्विद्यपूजितं ॥
 प्रशस्तदिग्दर्शकं शुचिभावं सहस्रं च ।
 सजालकं गवाक्षादय मात्मवर्षं निषेवितं ॥
 विकचसदृशसदृशं सवितानं कृतार्चनं ।
 परीक्षितं स्त्रीपुरुषं भवेत्तपि महानसं ॥
 तत्राध्यक्षं निपुणं प्रायं वेद्यगुणान्वितं ।
 शुच्यं दक्षिणं दक्षः विनीतः प्रियदर्शनः ॥
 सविभक्ताः सुमनसी नीचं केशनखा, शिखरः ।
 स्वाताड्डः सयमिनः कृतीणीषा, सुसंयुताः ॥
 तस्याचात्रा विधेशासुरा विविधाः परिकर्म्मिणः ।
 आहारस्थितं यथापि भवन्ति प्राणिनी यतः ॥
 तस्यान्महानसं वेद्यः प्रसादं रक्षितो भवेत् ।
 माहानसिक वीठारः सौपीठनिक पौपिकाः ॥
 भवेत्तु वैद्यवश्या ये चाप्येते तु केचन ।
 इतिवद्वा सन्ध्याणां वाक्येषु मुखैकैः ॥

शस्यः

In the *Kāmandakiya Nitisāra*, we find the king advised to take thoroughly examined food, and to be surrounded by physicians well-versed in the science of Toxicology;¹ and again it is said that king should take his medicines, cordials, and edibles after having his medical attendants tasted them.² The king is advised to kill his enemy by weaning over his physician or by administering poisonous liquids.³

In the *Mahāvāgga*⁴ we find the qualities of a good patient and a good nurse described —

“6. What are five qualities, O Bhikkhus, which when a sickman has, he is easy to wait upon—

When he does do what is good for him; when he does know the limit (of the quantity of the food) that is good for him; when he does take his medicine, when he does let a nurse who desires his good, know what manner of disease he has, or when he is getting worse that that is so, or when it is getting better that that is so, and when he has become able to bear bodily pains that are severe, sharp, grievous, disagreeable, unpleasant and destructive to life. These are the five qualities, O Bhikkhus, which when a sickman has, he is easy to wait upon.

¹ विषवैरुदकैः स्नात विषघ्नमनिमूषित ।

परिस्नितं समशीयाज्जाडुल्लविद्विषग्रहतः ॥ १० ॥

Kāmandakiya Nitisāra vii. v. 10.

² औषधानि च सर्वानि पानं पानीयमेव च ।

तत्कल्पकैः समाखाद्य प्राशीयाञ्जीजनानि च ॥ २७ ॥

Ibid. vii. v. 27.

³ भिषग्भेदेन वा शत्रुं रसदानेन साध्ययेत् ॥ ७० ॥

Ibid. IX. v. 70.

⁴ *Mahāvāgga* viii, 28 6 & 8 *Sacred Books of the East*.

8. There are five qualities, O Bhikkhus, which, when one who waits upon the sick has, he is competent to the task—when he is capable of prescribing medicines; when he does know what (diet) is good and what is not good for the patient, serving what is good and not serving what is not good for him, when he does wait upon the sick out of love, and not out of greed, when he does not revolt from removing evacuation, saliva or vomit; when he is capable of teaching, inciting, arousing and gladdening the patient with religious discourses. These are the five qualities, O Bhikkhus, which, when one who waits upon the sick has, he is competent to the task.”

There is also good deal of evidence to show that medicines were distributed free to the poor and to the pious men. When Viṣakhā asked for eight boons of the Buddha, she mentioned amongst them the privilege of bestowing her life long “food for the sick, food for those who wait upon the sick and medicines for the sick” and explained her reasons as follows¹ :—

“9. Moreover, Lord, if a sick Bhikkhu does not obtain suitable foods, his sickness may increase upon him, or he may die. But if a Bhikkhu have taken the diet that I shall have provided for the sick neither will his sickness increase upon him, nor will he die. It was this circumstance, Lord, that I had in view in desiring to provide the Saṅgha my life long with diet for the sick.

Moreover, Lord, a Bhikkhu who is waiting upon the sick if he has to seek out food for himself, may bring in the food (to the invalid) when the sun is already far on his course, and he will lose the opportunity of taking his food. But when

he has partaken of the food I shall have provided for those who wait upon the sick, he will bring in food to the invalid in due time and he will not lose the opportunity of taking his food. It was thus circumstances, Lord, that I had in view in desiring to provide the *Samgha* my life long with food for those who wait upon the sick.

10. Moreover, Lord if a sick Bhikkhu does not obtain suitable medicines his sickness may increase upon him, or he may die. But if a Bhikkhu have taken the medicines which I shall have provided for the sick, neither will his sickness increase upon him, nor will he die. It was this circumstance, Lord, that I had in view in desiring to provide the *Samgha*, my life long with medicines for the sick."

The Edict No. II of Aśoka clearly shows that charitable institutions were common in India, during his reign. The Edict runs as follows:—

"Everywhere in the kingdom of the king Piyadasi, beloved of the gods, and also of the nations who live in the frontiers such as the Cholas, the Pandyas, the realms of Satyaputra and Keralaputra, as far as Tambapani, (and in the kingdom of) Antiochus, king of the Greeks and of the kings who are his neighbours, everywhere the king Piyadasi, beloved of the gods, has provided medicines of two sorts, medicines for men and medicines for animals. Wherever plants useful either for men or for animals were wanting they have been imported and planted. Wherever roots and fruits were wanting, they have been imported and planted. And along public roads, wells have been dug for the use of animals and men."

We also learn from Hsuen Tsang's account that Śīladitya II

(610 - 650 A. D.) was inclined towards Buddhism and he forbade the slaughter of living animals, built *stupas* and "in all the highways of the towns and villages throughout India, he erected hospices, provided with food and drink, and stationed there physicians with medicines for travellers and poor persons round about, to be given without any stint."¹

He also mentions about the father of the Bhikkhu Śrutavimsatikotī, that "from his house to the snowy mountains, he had established a succession of rest-houses, from which his servants continually went from one to the other. Whatever valuable medicines were wanted, they communicated the same to each other in order, and so procured them without loss of time so rich was this family."²

He also mentions charitable institutions called *Punyaśālās* as common in India. "There were formerly in this country (Tsch-kia-Takka) many houses of charity (goodness or happiness, *Punyaśālās*) for keeping the poor and the unfortunate. They provided for them medicines and food, clothing and necessities, so that travellers were never badly off."³

Again he says "Benevolent kings have founded here (Mo-ti-pil-lo or Matipura) a house of "merit" (*Punyaśālās*) This foundation is endowed with funds for providing choice food and medicines to bestow in charity on widows and bereaved persons, on orphans and the destitute."⁴ A similar *Punyaśālā* or hospice was in K'ei-P'an-to (Kabandha)⁵ In describing

¹ Beal's Record, Vol. I, p. 214.

² *Ibid*, Vol. II, p. 188.

³ *Ibid*, Vol. I, p. 165

⁴ *Ibid* Vol. I p. 198.

⁵ *Ibid*, Vol. II, p. 303

Multan he says: "They have founded a house of mercy (happiness), in which they provide food, and drink, and medicines for the poor, and sick, affording succour and sustenance."¹ Of Śīlāditya he says: "Every year he assembled the Sramanas from all countries, and on the third and seventh days he bestowed on them in charity four kinds of Alms (*viz*—food, drink, medicine, clothing)"²

Fa Hian (405-11 A.D.), a contemporary of Candragupta Vikramāditya, describes the charitable dispensaries in the town of Pāṭāliputra thus:—"The nobles and householders of this country have founded hospitals within the city to which the poor of all countries, the destitute, cripple and the diseased may repair. They receive every kind of requisite help gratuitously. Physicians inspect their diseases, and according to their cases order them food and drink, medicines or decoctions, every thing in fact that may contribute to their ease. When cured, —they depart at their convenience"³ Smith remarks. "No such foundation was to be seen elsewhere in the world at this date, and its existence, anticipating the deeds of modern Christian charity, speaks well both for the character of the citizens who endowed it, and for the genius of the great Aśoka whose teaching still bore such wholesome fruit many centuries after his decease. The earliest hospital in Europe, the Maison Dieu of Paris, is said to have been opened in the 7th centuries."⁴

"Upatisso, son of Buddha Das, builds Hospitals for cripples,

¹ Beal's Record, Vol. II, p 274

² *Ibid*, Vol I, p 214

³ *Ibid*, Vol I, Intro 1en

⁴ Smith's Early History of Ind. 2nd Ed. p 280

for pregnant women and for the blind and diseased.¹ Dhatushena builds Hospitals for cripples and sick². Buddha Das³ himself ordained a physician for every ten villages on the high road, and built assylums for the crippled, deformed and destitute."⁴

The animal Hospitals or Pinjrapoles which still exist at Ahmedabad, Surat, and Sodepore in Bengal, and elsewhere may be regarded as the survivals of the institutions founded by the Maurya monarch. The following account of the Surat Hospital in the 18th century is from the pen of Hamilton:—

"The most remarkable institution in Surat is the Banyan Hospital, of which we have no discription more recent than 1780. It then consisted of a large piece of ground enclosed by high walls, and sub-divided into several courts or yards for the accommodation of animals. In sickness they were attended with the greatest care, and here found a peaceful assylum for the infirmities of old age.

When an animal broke a limb, or was otherwise disabled, his owner brought him to the Hospital, when he was received without regard to the caste or nation of his master. In 1772 this hospital contained horse, mules, oxen, sheep, goats, monkees, poultry, pigeons, and variety of birds, and also an aged tortoise, which was known to have been there seventy-five years. The most extraordinary ward was that appropriated for rats, mice, bugs, and other noxious vermins for whom suitable food was provided."⁵

¹ Mahāwanso, p. 240. ² *Ibid*, p. 245.

³ *Ibid*, p. 256.

⁴ Cunningham's Bhilsa Topes, p. 54, foot note

Hamilton's Description of Hindustan 120) Vol. I, p. 718 quarto ed. Crooke. Things Indian, Art. Pinjrapole M y 1896).

We quote here from Hemādri the opinions of the sages and the Purāṇas as to the merit of the founder of a hospital¹ :—

Visvāmitra.

There is no gift more precious than the gift of cure ; therefore it should be given freely to the sick to augment one's good fortune. He who gives medicines, diet, food, oil for smearing and shelter to the sick, becomes free from all diseases.

Samvartta.

The giver of medicines, oleaginous remedies and food for the cure of the sick, becomes free from all diseases, happy and long-lived.

Agastya.

Those who give rice and medicines freely attain happiness, being free from disease.

Saura Purāṇa.

He, who gives medicines to the sick to cure their diseases always remains healthy, long-lived and happy.

¹ अथ आरोग्यदानं ।

तत्प्राप्त्यर्थं दानं कुर्यात् ।

आह विश्वामित्रः ।

आरोग्यदानात्परमं न दानं विद्यते क्वचित् ।

अतीदृश्यं राजाणां आरोग्यं भाग्यवद्भवे ॥

अथैषं पथ्यमाहारं वैलाभ्यङ्गप्रतिश्रयं ।

यः प्रयच्छति रोगिभ्यः स भवेद्भ्रातृवर्जितः ॥

संवर्त्तः ।

अथैषं खेद-माहारं रोगिणां रोगप्रान्तये ।

इदानीं रोगरहितं सुखं दीर्घायुश्च यः ॥

Nandi Purāṇa

The high-souled man who gives the Brahmins collyrium in charity to cure the diseases of the eye, goes to the Sun (after death) and becomes free from eye diseases, fine-looking and fortunate.

Good health is a step to the acquirement of religious merit, wealth, pleasure and final emancipation, and so the man who bestows cure to the sick and also he who erects a hospital equipped with good medicaments, dresses, learned doctors, servants and rooms for students, always gain them. The doctor should be well-versed in the religious treatises, experienced, familiar with the actions of medicines, a discriminator of the colour of the roots of the herbals and well-acquainted with the

अगस्त्यः ।

अत्री-षधप्रदातारः सुखं याति निरामया ।

सौर पुराणे ।

रोगिणी रोगशान्तिर्धर्मोषधः यः प्रयच्छति ।

रोगहीनः स दीर्घायुः सुखी भवति सर्वदा ॥

नन्दि पुराणे ।

अन्नं यो नरोदद्यादक्षीर्णानिहत्तये ।

विश्राय स पुमान् याति सूर्यलोकां महामतिः ।

आरोग्यनयनी दिव्यः सुभगी जायते नरः ॥

तस्मिन्नेव पुराणे ।

धर्मार्थकाममोक्षाणां आरोग्यं साधनेर्द्युतः ।

अवस्थारोग्यदानेन नरो भवति सर्वदा ॥

आरोग्यं नरो भवति सर्वदा ॥

proper season of raising them from the ground, well-trained with the qualities of the juices, (their strength and actions), sālī rice, meat and medicaments, trained in compounding medicines, one who knows well of the physique of men by intelligence, one who knows the temperament and the qualities of the diet, a pathologist who is not idle, well acquainted with the remedial agents for the premonitory signs and sequelæ of diseases, proficient in the requirements of time and place, well-read in the medical text-books—the Ayurveda with its eight divisions and an expert in curing diseases by domestic remedies (prepared from handful of common ingredients).

The pious man who erects such a hospital in which the services of good physicians of this nature are retained, becomes celebrated as the virtuous, the successful and the intelligent

वैद्यस्तु शास्त्रवित् प्राज्ञो दृष्टौषधपराक्रमः ।

शौषधीमूलवर्णज्ञः समुद्धरणकालवित् ॥

रसवीर्यविपाकज्ञः शालिमांसशौषधीगणे ।

योगविद्वेहिनां देहं यो धिया प्रविशेद्बुधः ॥

धातुपथ्यमयज्ञश्च निदानविदतन्द्रितः ।

व्याधीनां पूर्वलिङ्गज्ञस्तदुत्तरविधानवित् ॥

देशकालविधानप्रशिक्षित्साशास्त्रविज्ञया ।

अष्टाङ्गायुर्वेदवेत्ता सुष्टियोगविधानवित् ॥

अष्टावङ्गानि आयुर्वेदस्य ।

यथाशस्त्रं शालात्वं कायचिकित्सा भूतविद्या कौमारभृत्यमगदतन्त्र रसायणतन्त्र वाजौ-
करणतन्त्रमिति सुश्रुतीक्तानि ।

एवं विधः शुभो वैद्यो भवेद्यद्याभियोजितः ।

आरोग्यशालामवन्तु कुक्ष्याधीचर्यसंश्रयः ॥

स पुमान् धार्मिको शीघ्रं स तप्तार्थं सपुत्रिमान्

man in this world. If in such a hospital the kind-hearted man can cure a single patient of his maladies by simple medicines, oleaginous remedies and compounds of medicinal decoctions, goes to the Brahma's residence with his seven generations upwards. The rich and the poor acquire religious merit in proportion to the amount of riches they possess; where would the poor man get a hospital and a young physician to cure his diseases ? The man secures the eternal regions mentioned before by rendering the sick healthy by the use of roots to some and by good rubbing (with external applications) to others. He who cures the sick suffering from an increase or decrease of the Air, the Bile and the Phlegm by simple remedies, he too goes to such blessed regions (after death) as are secured by those who perform many religious sacrifices (Yajñas).

व्याधिने विरुज्जी कृत्य अथैकं कुरुष्यायुतः ।
 प्रयाति ब्रह्मसदनं कुलसप्तकसंयुतः ॥
 आस्थौ वित्तातुसारिण दरिद्रः फलभाग् भवेत् ।
 दरिद्रस्य कुतः शाखा आरोग्याय भिषग्गुवा ॥
 अपिमूलिन केनापि मर्द्दनाद्यैरथापि वा ।
 स्वस्थीकृते भवेन्नर्त्ता पूर्वोक्तं लोकमथयं ॥
 वात-पित्त-कफाद्यानां चया-पचयक्षेदिनां ।
 यस्तु स्वस्वाभ्युपायेन नीचयेत् व्याधिपौडितान् ॥
 सीपि याति शुभान् लोकान् अवाप्यान् यज्ञयाजिभिः ।

स्कन्दपुराणे ।

आरोग्यं शाखां यः कुर्यात् महाविद्यपुरस्कृता ।
 सर्वोपकरणीयेतां तस्य पुण्यफलं शृणु ॥
 धर्मार्थ-काम-मीक्षाणामारोग्यं साधनं यतः ।
 तस्मादारोग्यं दानेन तद्वत् स्याच्चतुष्टयं ॥
 अथैकमार्थं विद्वांसं स्वस्थीकृत्य प्रयवतः ।
 प्राप्नोति सुमहत्पुण्यमननं चयवर्जितं ॥
 शान्दीकरत् धानं रीवांश्च शिववीजिनं
 न सस्य कुरुते सीपि सर्वदानफलं समत् ॥

Skandapurāṇa.

Hear, the amount of religious merit secured by a man who erects a hospital containing all the necessary articles (of treatment) and in which are engaged eminent physicians by reward. As good health is the means of attaining religious merit, wealth, pleasure and final emancipation, therefore, he by rendering the sick healthy, gives these four blessings.

By carefully curing a learned man of his sickness great merit is secured, which is eternal and indestructible. He too who cures a sickman who is calm and absorbed in meditation of Siva and knowledge, attains the virtue of all kinds of gifts. Brāmhā, Viṣṇu, all the gods, diseases, relatives and kings—they are obstacles to yoga but not to those who perform it (yogi). Whatever merit is obtained by the great, by supporting the sick Brāhmans (priests), Kshatriyas (warriors), and Bīṭh (cultivators) and Sudras (servants), can not be obtained by the performance of all the great Yajñas (religious ceremonies) As even the gods can not reach the end of the

ब्रह्मा विश्वः सुराः सर्वे व्याधयः स्वजना वृषाः ।

योगस्यैते महाविघ्ना व्याधयस्ते न योगिनां * ॥

ब्रह्म-क्षत्रिय-विट्-शूद्रान् रोगार्तान् परिपाल्य च ।

यत्पुण्यं महादाप्नोति न तत्सर्वमहामखैः ॥

आकाशस्य यथा नान्तः सुरैरप्युपलभ्यते ।

तद्वदारीग्यदानस्य नान्तीवै विद्यते कचित् ॥

पुण्येनानेन महता गत्वा शिवपुरं नरः ।

सीदते विविधैर्भोगैर्विमानैः सर्वकामिकैः ।

एकविंशत्कुलोपेतः सभृत्यः परिपालितः ।

आसी शिवपुरे तावदावदाहृतसंज्ञवं ॥

ततः स्वधर्मशेषेण संप्राप्तः प्रयतः सदा ।

आनमुत्पदाते तस्य रुद्रेण परिवारकः ॥

firmament, so there is no end (to the merit) of the gift of cure. By this great merit, the man reaching the region of Siva enjoys himself by soaring in a balloon which can go to the various desired directions. With his twenty-one generations upwards and surrounded by his servants, he stays in the Siva's realm so long till deluge does not occur. There, after the lapse of his merit, the devoted servant acquires knowledge from Siva.

Abandoning this world by knowledge, abiding by the prayers to Siva, and casting away this body as a straw, he reaches beyond the limits of sorrow. Being freed from all sorrows, becoming pure, all-knowing and self-sufficient, and absorbed in his ownself, they are called the *Liberated*. Therefore to mitigate the diseases, the sick should be well nursed; the great sages should especially be attended to even by the sacrifice of one's body or riches. The wise must not irritate the weak patients, and they like the preceptors should be rescued constantly from sins. He who relieves the sick, by taking them under his care, reaches the other bank of this ocean of world.

ज्ञानादिरक्तः संसाराच्छिद्यव्यादमुपाश्रितः ।
 स्वदेहं दृष्टवत्प्राक्ता सर्वदुःखानामुपश्रितः ॥
 समस्तदुःखनिर्मुक्तः शुद्धः स्वात्मव्यवस्थितः ।
 सर्वज्ञः परिपूर्णश्च मुक्त इत्यभिधीयते ॥
 तन्माहीनापवर्गार्थं रोगात् समुपाचरेत् ।
 विशेषेण तु योगीन्द्रं शरीरेण धनेन च ॥
 रोगिणी नीडिजेत् प्राज्ञी दुर्बलानपि सर्वदा ।
 तान् पापाद्गुणवन्नित्यमेवत्सर्गः प्रवर्त्तते ॥
 योतयद्दीप्तमात्मानं मन्त्रमानी दिने दिने ।
 उपसर्पेत रोगात्सर्वैर्बलेन मन्त्राणां ॥

इत्यारोग्यदानं ।

After these proofs, the statement of Mr. Ameer Ali that "the Arabs invented chemical pharmacy, and were the founders of those institutions which are now called dispensaries"¹ can not be accepted as correct.

DISPENSARIES.

As regards dispensaries, Suśruta advises the physician to construct his dispensary in a clean locality, and the building should face towards some auspicious direction as the east or the north. He says — "The medicines should be kept in burnt earthen pots arranged on planks supported by stakes or pins".² This is still the method of storing medicines used by the *Kavirājas*. Dailvaṇa explains the passage thus:—"The medicines should be kept in pieces of cloth, earthen pots, wooden pots and Śanku (kilaka)"³ The former explanation is plausible for it is impossible to imagine how a kilaka or stake can be a container of medicine, unless it is implied as a point of support for hanging the medicine vials from it.

Dr. Heyne (1814) thus describes the ancient dispensaries of the Hindus "The place in which medicines are kept should

¹ History of the Saracens p. 262, 1899.

² श्लोकान्तरात्फलकशङ्खुविन्यस्तभेषज
प्रशस्त्याया दिशि शृचौ भेषजागारमिष्यते ॥

Suśruta Saṁhitā I. xxxvii.

³ गृहीतौषधसंस्थापनोपायं दर्शयन्नाह,—श्लोकेति । श्लोकः कर्पटखण्डं, मृदा भाण्डं, मृत्भाण्डं । फलकं पटकं इति पुस्तकान्तरे पाठः, शङ्खुः कौलकाः, एतेषु श्लोकादिषु विन्यस्तं धृतं भेषजं यस्मिन् गृहे तत् भेषजागारं भेषजगृहमिष्यते इति सम्बन्धः । प्रशस्त्यायां दिशि पूर्वस्यामुत्तरस्यां वा, शृचौ दिशे अस्मिन् भूमिप्रविभागौषाध्याये, निवन्धेषु व्यत्ययेन न पाठी दृश्यते । अस्माभिस्तु ब्रह्ममरौलैव पाठी लिखित इति सर्वोपयवसाधेस्त्रिधादि यावन्नव द्रव्यं पुराणमिति पाठः न पठन्ति ॥

be clean, dry, and not accessible to rats, white ants or dust. The drugs ought to be put in nets, or large pots, the mouth of which must be tied over with a piece of cloth, and suspended in a room. Fire, smoke and water must be kept at a distance

The house in which medicines are stored, should be neither in too high nor too low a situation, and it should not be far distant from places in which medicines may be collected. Its front should face either the south or the north, with a convenient *virunda* before the door of the same side.

The necessary apparatus for mortars, scales, &c, must be kept in a place in the wall that has been consecrated for that purpose by religious ceremonies "

After describing the different classes, and members composing each class, of medicines, Suśruta continues. "The wise physician should collect and classify these medicines, and with them prepare external applications, infusions, oils, ghee, syrups, &c, as required for derangement of a particular humour. The medicines should be carefully preserved in all seasons, in rooms free from smoke, rain, wind and dust. The medicines should be used singly, or in combinations of several medicines of a class, or of an entire group, or of more than one group, according to the nature of the disease, and the extent of derangement of the humours."²

² रसिर्लेपान् कषयाश्च तैल सर्पिर्विपानकान् ।

प्रविमज्य यथाव्यायं कुर्वीति मतिमान् सिष्यश्च ॥

धूमवर्षानिलक्लेदैः सर्वैर्घृणमिदुते ।

साहयित्वा यद्वे न्यस्येद्विधिनोपवसयहं ॥

समौह्य दोषमेदाश्च गणान् भिन्नान् प्रयोजयेत् ।

पृथक्सिन्नाश्च समसान् वा जलं वा व्यस्यसृजत ॥

ANÆSTHETICS.

In the medical text books of the Hindus, there is no mention of a general anæsthetic, from which we can infer that it was unknown in those ancient days. There are, however, many indications to show that the earlier surgeons felt the necessity of such an agent to produce insensibility to pain. Both Caraka and Suśruta mention the use of wine to produce the desired effect. Caraka says. "After extraction of a dead fœtus before the full term of pregnancy, wine should be prescribed to her, for that will improve the condition of her uterus, make her happy and alleviate the pain of the operation."¹ Suśruta, however, distinctly lays down that "wine should be used before operation to produce insensibility to pain." He again remarks: "It is desirable that the patient should be fed before being operated on. Those who are addicted to drink and those who cannot bear pain, should be made to drink some strong beverage. The patient, who has been fed, does not faint, and he who is rendered intoxicated, does not feel the pain of the operation."²

The use of certain drugs to produce anæsthetic effects was well known to the ancient Greeks and Romans. Dioscorides

¹ व्यपगतगर्भश्चत्वात् स्त्रियमासगर्भा सुराशौध्नरिष्टमधुमदिरासवानामन्यतमनये सामध्येतः पाययेत गर्भकोष्ठविशुद्धार्थमर्त्तिविस्मरणार्थं प्रहर्षकार्यञ्च ॥

Caraka Saṁhitā, IV, viii.

² प्राक्शस्त्रकर्मणश्चेष्टं भोजयेदातुरं भिषक् ।
नदप पाययेन्मद्यं तीक्ष्णं योऽवेदनासहः ॥
न मूर्च्छत्यन्नसंयोगान्मत्तः शस्त्रं न बुध्यते ।
तस्मादन्नश्च शीतव्यं रीशेषूत्तेषु कर्मेभिः ॥
प्राणी ह्याभ्यन्तरो नृणां वाह्यप्राणयुष्मान्वितः ।
हरौर् पायमौषिर्ष ॥

Suśruta Saṁhitā I xvii,

mentions Mandragora (Mandragora Atropa) to have been employed internally as a hypnotic and anæsthetic Pliny (32-79 A.D.) in his Natural History mentions that this anæsthetic was also used by inhalation, and this fact is corroborated by Galen, Aræteus, Celsus and others. The Arabian physicians also used it. The Chinese surgeons still use some powder (Indian hemp probably) to throw their patients into profound sleep. In the 13th century Theodoric (died 1298) described the "spongio somnifera" the vapours raised from which were capable, when inhaled, of setting patients into an anæsthetic sleep, thus inducing insensibility to the agony and torture of a surgeon's knife. Baptista also mentions his "Pomum somniferum" to be made with mandragora, opium, &c. The Hindus also inhaled the fumes of burning Indian hemp as an anaesthetic at a period of great antiquity. As early as 927, A. D., they also knew drugs which they employed for the same purpose, for Pandit Vallāla, in his Bhoja Prabandha, alludes to a cranial operation performed on the King Bhoja after he was rendered insensible by some drug called Sammohini (producer of unconsciousness). Another drug is also mentioned, Sañjībanī (restorer to life), by which he soon regained consciousness after the operation had been finished.¹

¹ तवसावपि राजानं मोहचूर्णेन मोहयित्वा शिरःकपालभादाय तत्करीटिकापुटे स्थित
शफरकुलं गृह्णीत्वा कस्मिंश्चिद्वाजने निक्षिप्य सन्धानकरणया कपालं यथावदारचय्य सञ्जीवना
य तं जीवयित्वा तस्मै तद्दर्शयताम् ।

CHAPTER III

MATERIALS OF INSTRUMENTS.

IRON AND STEEL

In the R̥gveda, *ayas*, (Latin *aes*), next to gold, is the metal most often referred to. *Ayas* often stands as a generic name to mean simply "metal," though in later works it signifies iron as a rule. The mention of dark and red *ayas* in the Atharva-veda indicates a distinction between iron and copper or bronze. The surgical instruments of the Hindus are recommended generally to be made of iron, but Suśruta allows other suitable material when iron of good quality is not available.¹ He says: "A wise surgeon should get the instruments made of pure iron and with sharp edges by an expert blacksmith who is skilful and experienced in his craft."² The use of impure iron as a material for surgical instruments, he deprecates as a defect and advises the surgeons not to rely on such instruments.

The Hindus were acquainted with steel and they knew how to turn out steel of fine quality from a pure iron ore. Nāgārjuna, the well known Buddhist chemist, wrote a scientific

¹ तानि प्रायशो लौहानि भवन्ति तत्प्रतिरूपकाणि वा तदन्ताभे ।

Suśruta Samhitā. I vii

² अस्त्राण्येतानि सतिमान् शुद्धशैव्यायसानि तु ।

कारयेत् कारये मात कारयेत् कारयेत् ।

treatise on steel and iron.¹ Śibodāsa in his commentary on Chakrapāṇi quotes Patañjali as an authority on the subject.² In the Dhanurveda, Viracintāmaṇi, Śāraṅgadhara-paddhati and Lohārṇava, steel as a material of sword has been described and classified.

Dr. Mitra quotes some references³ about the knowledge of iron possessed by the ancient Hindus from the Rgveda. He finds that "swords (II. 156), spears (IV. 25), javelins (II. 292), lances (I. 774), (IV. II. 288) and hatchets (I. 120) are frequently mentioned; and these weapons were bright as "gold" or golden (IV. 19), "shining bright" (I. 175), "blazing" (IV. 93), "sharp" (IV. 113) and "made of iron" (I. 226); they are "whetted on a grind stone (II. 36) to improve their keenness (I. 150), and "polished to enhance their brightness" (II. 326)... .."According to Nearchus, King Porus gave 30 lbs of steel to Alexander as the most precious present he could offer."

Royle also remarks⁴ - "Working in metals they have long been famous for: their steel acquired so great celebrity at an

¹ नागार्जुनी मुनीन्द्र ग्रन्थस्य यस्मिन्निष्ठास्वसतिगहनम् ।

तस्यार्थस्य श्रुतये वयमेतद्विशदाचरैर्ब्रूमः ॥

Cakradatta, Rasāyanādhikāṭa.

² अर्चयित्वा विधानिन् हिरन्मं युष्मास्मरौ ।

लोकपालान् यहाश्चैव स्वेवपालानर्धाषधम् ।

आदित्यदेवताश्चेहा धन्वन्तरी-पतञ्जली

दद्याद्विष्णु सर्व्वेभ्यो नानाभक्षोपचारतः ॥

Quoted in Śibodas's commentary on Louhamārṇava-
Vidhi in Cakradatta.

³ Dr. R. L. Mitra's Indo-Aryans, Vol. I P. 301 See Wilson's Rgveda.

⁴ Royle's Antiquity of Hindoo Medicine, Pp. 48-7

early period, as to have passed into a proverb among the Persians, where *foulurdee hind* indicates steel of the best quality; and *juwabee hind*, an Indian answer, means a cut with a sword made of Indian steel.¹

COPPER

Pure copper was also used as a material of instruments, and vessels and instruments of copper are frequently mentioned in the medical books of the Hindus. A copper probe for applying antimony to the eye has been found in the excavations of Bijnor and another in the Bihat excavations. Cakradatta¹ advises us to use a copper probe for the application of *leh-hanu* collyrium, and Suśruta mentions a copper needle in the operation for réclination of cataract.²

TIN

Tin was also used as a material of blunt instruments. Suśruta mentions plates of tin to surround a tumour and to protect the healthy parts, before the application of actual cautery.³ Such plates are recommended to be made of tin, or lead, or copper, or iron.

LEAD.

Tubes of lead were used for purpose of fumigation. Probes made of lead were used for application of collyrium. The use

¹ प्रशस्ता लेखने तासी रीपने कालखीहजा ।

Cakradatta, Añjanadhikāra.

² ताम्रायसी शतकौम्भी शलाका स्यादनिन्दिता ।

Suśruta Saṁhitā, VI xvii

³ अस्यावशिष्टे कृमिभिः कृते च लिखिततोऽग्निं विदधौत पश्चात् ।

यद्वक्ष्यमूलं वपुतावसीस पट्टेः समावेध्य तदायसेत्वा ।

चारद्विश्रज्जाय सकृद्विदध्यात् प्राणाच्छिंसनं निषण्णमस्य ।

of lead plates to surround tumours before application of actual cautery has been noted above.

BELL-METAL

The use of bell-metal—an amalgam of zinc or tin and copper, 25 parts of the former with 75 parts of the latter,—as a material of probes for applying collyrium, is mentioned by Suśruta¹

GOLD AND SILVER

Gold was known to the Hindus from the remote antiquity, and among the metals, it is the one most frequently² mentioned in the R̥gveda. Silver was perhaps unknown during the earlier Vedic age, from its name being not mentioned in the R̥gveda. But no conclusion can safely be drawn from this argument³. We find, however, gold, silver, and other precious

¹ सौवर्णं राजतं शङ्खं ताम्रं वैदूर्यकांसाजं
आयसानि च योज्यानि शलाकाश्च यथाक्रमं ॥

Suśruta Samhitā, VI. xviii.

² “निष्कं द्यौव”

R̥gveda. 5 Mandala 19 Sūkta.

“निष्केन सुवर्णेन अलङ्कृता द्यौवा” ।

Sāyana.

अश्वः न हेम्यावान् ।

Ibid. 4 Mandala. 2 Sūkta.

“सुवर्णं निर्मितं कथ्यावान् अश्वः” ।

Sāyana.

“A horse with golden caparisons”—Wilson.

³ “एनौ रवि” ।

R̥gveda. 5 Mandala 33 Sūkta

एनवर्णा चेतवर्णा रवि धनं ।

Sāyana.

Query if silver money be intended”